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An Address

ON

THE RELATIONS BETWEEN THE HUMAN AND THE BOVINE TUBERCLE BACILLUS.

Delivered at the International Conference on Tuberculosis at Rome, April, 1912,

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MR. PRESIDENT AND GENTLEMEN,—Much valuable and important work, all having a bearing on the relationship of human and bovine tuberculosis, has been done on the continent of Europe, in the United States of America, and in Great Britain, where several fruitful experimental investigations are being carried on by Professor Delépine and his school in Manchester, by Mr. Harold J. Stiles and Dr. James Ritchie, with their assistants, Dr. James Millar, Dr. John Fraser, and Dr. A. P. Mitchell in Edinburgh, and by Dr. L. Cobbett and Dr. Stanley Griffith in our Cambridge laboratories, the results of which no doubt will be reported in due course. What has already been published has certainly been corroborative of the conclusions arrived at by our Commission, and I feel that in this short note I must confine what I have to say almost entirely to what appears in the Reports of the British Royal Commission on Tuberculosis. Of course, I now speak, not as a member of that Commission, but as one of the public having access to the various reports that have, from time to time, been presented to Their Majesties, King Edward VII., King George V., and to the British Parliament.

TERMS OF REFERENCE OF COMMISSION.—PRELIMINARY ARRANGEMENTS.

It will be within the memory of most of those interested in this subject that the Commissioners were appointed to inquire and report with respect to tuberculosis:—(1) Whether the disease in animals and man is one and the same; (2) whether animals and man can be reciprocally infected with it; and (3) under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favourable or unfavourable to such transmission. These three terms of reference, though set out separately, are so interdependent that it is impossible to answer any one of them without referring to the others, and in what follows no attempt will be made to separate the answers given to the three questions propounded. It will be noted, however, that the First and Second Interim Reports deal chiefly with the particular questions contained in the first two terms of reference, and that the work there recorded serves as a basis for certain of the questions discussed in the Final Report.

The Commission was appointed in August, 1901, and arrangements were entered in with Sir James Blyth, Bart. (now Lord Blyth), to utilise for the work of the Commission a couple of farms about a mile and a quarter apart, and a house half-way between the two. These farms and the house were placed free of rent and unreservedly at the disposal of the Commissioners. A separate and independent staff was appointed, and a resident was placed in charge of each farm and the central laboratory, each department being thoroughly isolated. Extensive buildings, suitable for the accommodation of animals, large and small, were provided, and laboratories and other buildings—destructors, offices, and workshops—were erected. The most stringent regulations as to separation of staff, changing of boots and clothing, sterilisation of utensils, apparatus, and instruments, were drawn up. So well were these regulations carried out and with such care and enthusiasm did the whole of the staff enter into the work that within a short time of the commencement of the investigation the staff, as may be gathered from the various reports, had gained the entire confidence of the Commissioners. These preliminary arrangements took time, however, and it was not until the early part of 1902 that the experiments could be commenced.

HUMAN DISEASE CAUSED BY BACILLUS OF BOVINE ORIGIN.

On May 16th, 1904, was published the first short interim report, in which it was announced that, having carefully compared the disease produced in the bovine animal by certain strains of tubercle bacilli obtained from cattle, with that produced by certain strains obtained from the human subject, the Commissioners found them to be identical both as regards broad general features and in finer histological details. They had, they said, failed to discover any character by which the tuberculosis set up by the bacillus from one source could be distinguished from a tuberculosis set up by the bacillus from the other. Indeed, as they pointed out, their records contain accounts of the post-mortem examinations of bovine animals infected with tuberculous material of human origin which might be used as typical descriptions of cases of ordinary bovine tuberculosis.

It was not until 1907 that a second Interim Report was published. From this report it may be gathered that the Commissioners—who had by this time submitted 60 cases of human tuberculosis to careful investigation—were convinced that a certain number of cases of tuberculosis occurring in the human subject, especially in children, are the direct result of the introduction into the human body of the bacillus of bovine tuberculosis. Attention is drawn to the fact that of the 60 cases of human tuberculosis investigated up to that time 14 were the result of the action of the "bovine bacillus."

Analysing the whole group of cases they note that of 9 in which the cervical glands were affected 3 contained the bacillus of this group, and that of the 19 cases in which the lesions of abdominal tuberculosis were studied 10 contained the bovine bacillus; and they conclude that a large percentage of the cases of tuberculosis contracted through *ingestion* of infective material is due to the action of tubercle bacilli of this bovine source, and that more stringent measures than those at present in vogue must be taken to prevent the sale and consumption of the milk of cattle suffering from clinically demonstrable tuberculosis. Such cattle they proved are capable of yielding tuberculous milk—milk which when given to the young human subject may be a dangerous source of tuberculous infection.

Many of the points merely summarised in the final report are given in considerable detail in this second report. As, however, many of these points still required further confirmation the Commissioners speak very guardedly except on the general question above referred to.

INFECTIVITY OF MILK AND FÆCES OF TUBERCULOUS COWS.

The Third Interim Report, in view of the opinion expressed in the Second Interim Report, "that a very considerable amount of disease and loss of life, especially among children, must be attributed to the consumption of cows' milk containing tubercle bacilli," goes carefully into the question of the infectivity of the milk and fæces of naturally infected tuberculous cows—cows that had contracted the disease in the ordinary way—and is based on the experiments conducted with great care and precision by Dr. F. Griffith. That the milk from cows in which the udder is manifestly tuberculous contains tubercle bacilli had already been fully demonstrated, but there still remained considerable difference of opinion as to the amount of danger, if any, that attaches to the milk of tuberculous cows in which the udder presents no evidence of disease, especially in cases, on the one hand, in which such obvious symptoms of tuberculosis as emaciation and cough are present, and in cases, on the other, in which these conditions are absent and in which the disease can be recognised during life only by means of the "tuberculin test."

The number of animals examined is small—i.e., 6; but these tuberculous cows were submitted to the most minute investigation. None of them showed any disease of the udder during life, and after slaughtering, although careful search was made for tuberculous lesions and tubercle bacilli in the udder, none were found except in one case, in which one quarter of the udder showed four small nodules, so small that they could not possibly have been detected in the living animal.

In three of the animals, including the above-mentioned cow, clinical symptoms of tuberculosis were undoubtedly present, and in the milk obtained in the ordinary way, or in

that drawn off by means of a sterilised catheter, tubercle bacilli could readily be found. In the case of the other three cows, in which the disease could be diagnosed only because a tuberculin reaction was obtained, no tubercle bacilli were found, and, if present at all, were present so sparsely that they induced no typical tuberculous lesions when inoculated into guinea-pigs.

Whether the fæces of tuberculous cows are infected or not is a matter of no small moment: indeed, much importance has been ascribed to it by American writers. It must be borne in mind that "dirt" of various kinds, some of it undoubtedly coming from the cows within the sheds in which the milking is done, is almost constantly present in milk as it reaches the consumer. The evidence collected by the Commission appears to show that cows suffering from extensive tuberculosis of the lungs in the act of coughing displace and discharge numbers of bacilli from the air spaces and passages into the pharynx, the sputum being swallowed; the contained bacilli pass into the stomach and intestine and, alive or dead, appear in the fæces. These experiments seem to indicate that the excreta of cows obviously suffering from tuberculosis of the lungs or alimentary canal are to be regarded as comparatively dangerous, for it was found that those animals in which slight tuberculous lesions were present had in their fæces tubercle bacilli in small numbers, no doubt, although few or none could be demonstrated in the milk of these same animals; for the fæces of these animals inoculated into guinea-pigs gave rise to a considerable proportion of infections, although milk from the same animals injected into guinea-pigs set up no tuberculous lesions. The fæces from these animals are, of course, less dangerous than those from cattle in which the disease is "clinically obvious." The Commissioners insist, further, that the presence of tuberculous cows in the fæces and milk of which tubercle bacilli can be found in large numbers is distinctly dangerous to healthy cattle housed in the same shed or cow-house, as some of the tubercle bacilli which, along with the excrement, escape from the bodies of the tuberculous animals are almost certain to find their way into the alimentary canal or lungs of their sound house-mates.

RESULTS OF INVESTIGATIONS.

From both "Interim" and "Final Reports," the last of which was published in 1911, along with the 11 volumes in which the experiments are described, and which form the appendices to the reports, it will be seen that the investigation has, from first to last, been carried out with the object of obtaining "facts." Where possible a full account of each experiment has been set down, failures and successes alike have been recorded, and although the Commissioners put forward certain arguments and draw certain conclusions from their experiments, they place the whole of their results at the disposal of those who wish to make a critical survey of their position.

Coming to details, it will be found that the isolation of tubercle bacilli from the lesions of the natural disease in animals and man has naturally taken the first place. This is followed by a careful description of the cultural characters of the bacilli isolated from different sources and by a detailed study of the effects of these different strains when introduced into different animals in varying doses and by various channels. The animals used for experimental purposes were cattle (bovidæ), rabbits, guinea-pigs, pigs, goats, chimpanzees, monkeys (rhesus), horses, rats, mice, dogs, cats, and birds, which were infected by subcutaneous, intravenous, and intraperitoneal injection and by feeding respectively. In no case was any attempt made to infect by means of inhalation, as the question to be decided was not the paths of infection, but the nature of the process. In such an investigation the use of the experimental method was essential in order that the characters of the different bacilli isolated from the tuberculous lesions in various species of animals might be compared from as many points of view as possible.

During this inquiry, which extended over a period of nine years, three principal types of tubercle bacilli, each with well-marked characters, were easily distinguished in the human subject. In addition to these, however, certain other forms, distinguished from the above by special characters, were met with. These latter, though of enormous importance from the point of view of determining the answer to the main reference to the Commission, could only be brought into their proper relation to the whole question after a careful study of the three great types had been completed.

BOVINE TUBERCLE BACILLUS.

The first type described, the so-called "typus bovinus," was, with one exception, the only form found in the "natural" tuberculosis of cattle. It was found also in certain of the cases of tuberculosis of the human subject. In both the bovine and the human patient it appears to retain unchanged its special characters, of which the following may be taken as being the most important. It grows slowly on serum, and at the end of two or three weeks forms a thin greyish uniform growth, not wrinkled and with the formation of no pigmentation on the surface of the medium. The rate of growth on glycerinated media varies considerably in different cases, a variation so marked that the bacilli of this type are divided by the Commission into three grades or classes—No. I. growing slowly and forming a sparse film, No. III. growing most rapidly and attaining a much more luxuriant growth, and No. II. constituting in these respects an intermediate form. *These characters, along with the effects as regards virulence of the bacillus, were accepted as the basis of identification of the bacillus of bovine tuberculosis.*

The effects, as regards virulence, are the following. When a dose of 50 mg. of a three-week-old culture is injected under the skin of the neck of a calf a generalised tuberculosis starting from the point of inoculation was set up, which usually determined the life of the animal within eight weeks. The nature of this acute process is described in the following terms:—

> The local lesion is a mass of caseous tubercle, infiltrating the adjoining skin and muscle, and sometimes forming an abscess. The prescapular gland is a mass of caseous tubercle, as is also the prepectoral gland, and as are also to a less but variable extent the thoracic and mediastinal glands. Tubercles more or less caseous are found in very many, sometimes in all the other lymphatic glands. The lungs, spleen, liver, and also the kidneys are studded with tubercles, many of them caseous. Tubercles are found in the pleura, on the omentum, on the peritoneal surface, and in the intestinal walls.

These lesions were so characteristic and followed so regularly that they came to be looked upon as specific and pathognomonic of the presence of this type of micro-organism when given in the above dose. Much smaller doses—5 mg.—*may* produce the same results, but this is not invariably the case.

In rabbits generalised tuberculosis resulted within five weeks of the intravenous injection of 0·01 mg. of culture of the bovine tubercle bacillus; this tuberculosis is characterised by extensive miliary tuberculosis of the lungs, liver, spleen, and other parts of the body. Ten or 100 times this dose, 0·1 mg. or 1 mg., injected intraperitoneally, set up a tuberculosis fatal in from 10 to 48 days, according to the dose, and characterised by extensive tuberculosis of the peritoneal and abdominal glands, followed by invasion of the internal organs. Ten times these latter doses, 1 mg. or 10 mg., injected subcutaneously, caused death from tuberculosis in from 28 to 165 days, the course of the disease being a local lesion, tuberculosis of the lymphatic glands, first local and then general, and an affection of the internal organs, especially of the lungs and kidneys.

These inoculations into rabbits produced such characteristic results that, along with the cultural characters of the bacillus, they afford a trustworthy means of recognising the bovine tubercle bacillus; indeed, this method, worked out by Dr. Stanley Griffith, was ultimately used as a means of differential diagnosis between the different kinds of tubercle bacillus.

This bovine tubercle bacillus is, on subcutaneous inoculation in very small doses, acutely infective for the chimpanzee and rhesus monkey, and for the guinea-pig. The goat, the pig, and the cat are also easily infected, generalised tuberculosis being readily set up in these animals, which may even be used instead of the rabbit or the calf for the purpose of differentiating the bovine tubercle bacillus from any of the other types. The rat, the mouse, and the dog all appear to be highly resistant to subcutaneous inoculation of the bovine tubercle bacillus. They are more easily attacked through the intravenous and intraperitoneal system, but although in the rat and the mouse the bacilli may multiply and be present in large numbers in the organs and the blood, they by their presence may give rise to no tuberculous lesions such as are met with in animals more susceptible to the attacks of the bovine tubercle bacillus.

Fowls are much less susceptible to the action of this

bacillus, a local lesion only being produced by intraperitoneal or intramuscular injection, and an acutely toxic condition, which may or may not end fatally, when the bacillus is injected intravenously. Horses are resistant to moderate doses given subcutaneously or by ingestion, but 10 mg. injected intravenously sets up acute tuberculosis which may terminate fatally within 20 days. It is stated, sometimes, that the bovine tubercle bacillus loses its virulence when grown outside the body and subcultured over long periods. This is not borne out by the observations of the Commission, who state that little change in virulence could be recognised in an organism that had been so subcultured for as long a time as 1487 days.

HUMAN TUBERCLE BACILLUS.

The human tubercle bacillus, spoken of as Group II. in the Second Interim Report, and labelled as the "human tubercle bacillus," was present in, and obtained from, the lesions in the majority of cases of human tuberculosis. As regards cultural characteristics, this form grows more rapidly and luxuriantly than does the bovine tubercle bacillus; hence the term "eugonic" applied to it in contradistinction to the term "dysgonic" applied to the bovine bacillus. It has a characteristic wrinkled appearance when grown on glycerinated media, and has a tendency to become pigmented, however grown.

Injected subcutaneously into calves, in doses of 50 mg. of culture, under 3 weeks old, it produces no progressive tuberculosis, and the animal remains in fairly good health. At the seat of inoculation a larger or smaller local lesion, which ultimately becomes firm and fibrous, and often contains a cyst in the centre, is produced. A few caseous or calcareous nodules may be met with in the glands nearest the seat of inoculation or in one or several of the internal organs, but these may all be looked upon as strictly localised and retrogressive tuberculous lesions; in only about 50 per cent. of the animals inoculated was the extension beyond the nearest gland.

This bacillus, slightly virulent for the calf, is also but slightly virulent for rabbits; in 0·1 mg. to 1 mg. doses it usually fails to produce death in three months, though a few of the animals died in 20 days. A certain number of them developed a chronic tuberculosis, but there is no tuberculosis of the lung or at most only a few scattered grey calcareous fibrous or caseous tubercles are found in this organ, and then, usually, they are embedded in fibrous nodules. The kidneys may be the seat of a few grey or caseous miliary tubercles or one or two lymphatic glands may be affected, but the liver and spleen are rarely tuberculous. The eyes, genital organs, bones, and joints are affected somewhat more frequently. The whole picture of the disease, with its slow course and limited lesions, is essentially different from the acute generalised tuberculosis ending in death within five weeks, that follows injection of the bovine tubercle bacillus into these animals. Peritoneal injection with similar doses is marked by equal differences, the lesions here being scattered, of small size, and retrogressive.

METHOD OF DISTINGUISHING TYPES OF BACILLI.

As the outcome of these various intravenous injection experiments on the rabbit with the different types of bacilli, Dr. Griffith is convinced that for the purpose of distinguishing between the bovine tubercle bacillus and the human tubercle bacillus the following method may be employed as being thoroughly reliable. A dose of 0·01 mg. of the bovine tubercle bacillus causes death from acute and generalised tuberculosis within five weeks, whilst the same dose of the human tubercle bacillus never produces death within three months. Again, subcutaneous inoculation of 10 mg. of the bovine tubercle bacillus into the rabbit causes death of that animal from acute generalised tuberculosis in from 28 to 101 days, the same dose of the human tubercle bacillus killing only in periods varying from 94 to 725 days, and although Fiebiger and Jensen seem to be inclined to doubt the value of this test the experience of the Commissioners appears to be very definite, so definite indeed that it would be necessary to bring forward more than negative evidence to overthrow the very positive evidence adduced by them on this point. In the fowl the human tubercle bacillus acts very much as does the bovine tubercle bacillus.

The human tubercle bacillus, then, is distinguished from the bovine tubercle bacillus by its more ready growth on artificial media, and by the comparatively slight results it produces when inoculated into rabbits, calves, cats, pigs, and goats. Chimpanzees, rhesus monkeys, and guinea-pigs are affected similarly by both organisms, the lesions produced in these animals being alike in both distribution and in structure. Prolonged subcultivation appears to produce very little, if any, alteration in either the cultural characters or the virulence of this organism. The bacillus of avian tuberculosis may for our purposes be dismissed as playing a comparatively small and unimportant part in the dissemination of tuberculosis in the human subject, and I do not propose to consider the question further.

INVESTIGATION OF HUMAN CASES.

The material investigated by the Commission was obtained from 30 cases of tuberculosis in bovine animals and from the organs of 108 cases of tuberculosis (other than lupus) in the human subject. In addition, scrapings from the tuberculous skin of 20 cases of lupus were examined. These are considered separately.

Of the 108 cases, 14 suffered from primary pulmonary tuberculosis, and in every one of these 14 cases the bacillus was of the human type—Group II. The lungs, thoracic or cervical glands were investigated in all cases except two, in which the spleen and mesenteric glands were the source from which the virus was taken.

From 28 cases of pulmonary tuberculosis being treated in hospital the sputum was collected under the most rigid conditions in order to exclude the possibility of infection from the food. Twenty-six of these contained the human tubercle bacillus (Group II.) and two the bovine tubercle bacillus (Group I.). The patients, with the exception of one of 50 years of age, were young adults, 19 of whom were between 16 and 25, and 8 between 26 and 33. In 12 cases there were signs of excavation of the lungs and in 16 of consolidation on one or both sides, but no signs of cavity formation. The disease in every case was confined to the lungs, so far, at any rate, as could be determined by clinical examination.

The Two Human Cases of Pulmonary Tuberculosis from which Bovine Tubercle Bacilli were Separated.

The bacilli from the two cases above mentioned gave the characteristic culture appearances on artificial media, had the dysgonic growth of the bovine type of bacillus, and produced fatal generalised tuberculosis both in calves and in rabbits. No eugonic human tubercle bacilli (Group II.) could be found in either of these sputa. As much depends upon the history of these two cases, and as special attention was directed to the question of the types of tubercle bacilli met with in the sputa of tuberculous patients by the late Geheimrat Koch, it may be well to give a short abstract of the two above-mentioned cases drawn up from the Appendix to the Final Report of the Royal Commission, vol. i., pp. 149–152. From one of these two patients specimens were collected on four separate occasions at intervals of 75, 117, and 118 days. Cultures were obtained direct from the sputum on each occasion, but only "bovine bacilli" could be separated. This patient, aged 21 years, unmarried, was a butcher who had suffered from pneumonia and pleurisy ten months before admission to hospital on Feb. 3rd, 1909, and had suffered from cough ever since. When examined the patient presented signs of consolidation of the upper part of the lower lobe of the left lung. The breath sounds were weak, there were no crepitations and no signs of cavitation; the right lung was apparently normal. The temperature varied between 97° F. (36·1°C.) and normal; it had never risen above 99·5° F. (37·5° C.), and this had been reached on one or two occasions only. The sputum was first collected for experiment eight days after admission. Guinea-pigs, calves, and rabbits were inoculated both with the original material and from time to time with cultures, and on every occasion the cultures investigated, obtained from the sputum of this patient, were identical in cultural characters and virulence with the bovine tubercle bacillus, as tested on the first and third occasions on calves and rabbits, and on the second and fourth occasions on rabbits only. This patient went to a sanatorium connected with the hospital in August, 1909, returning home in the following October, where he died on Dec. 22nd of the same year, six months after the last specimen of sputum had been collected. No clinical evidence was noted of any disease other than pulmonary tuberculosis. There was no hæmoptysis at any time. It was not possible, however, to obtain a post-mortem examination.

The second virus, giving similar results, was obtained from the sputum of a man, aged 31 years, unmarried, a bricklayer, who was admitted to hospital on Jan. 20th, 1909. The patient had had pneumonia on the left side 11 years, and pleurisy four months, before admission. He had had slight hæmorrhages, each lasting for a few days, some time before admission, and had suffered from night-sweats but had no cough. On examination, signs of infiltration of the whole of the upper lobe of the right lung, with consolidation of the apex, and weak breath sounds with increased vocal resonance over the upper lobe of the left lung were noted. There were no signs of cavities. The temperature showed a slight daily variation, but no rise above 99° F. (37·2° C.). The patient's condition improved in hospital and he gained in weight. Sputum was first collected for experiment on Feb. 11th, 1909, and again on June 9th of the same year. The cultures obtained from both of these sputa were identical, both in cultural characters and in virulence for the calf and rabbit, with the bovine tubercle bacillus. This patient also went to a sanatorium in August, 1909, but returned home early in November without having shown any signs of improvement. At this latter date he was suffering from hæmoptysis and hæmatemesis with acute enteritis. He died on Nov. 14th, 1909, five months after the last specimen of sputum had been collected. An unsuccessful attempt was made to obtain a post-mortem examination.

Types of Tubercle Bacilli found in Various Forms of the Disease.

Returning to our consideration of the viruses, we find that in 3 cases of general tuberculosis, from one of which material was taken from the bronchial glands, from the lung and acne spots in another, and from the lung, the cerebral meninges, and the bronchial glands in the third, human tubercle bacilli only were present.

Amongst 5 cases in which the bronchial glands were affected the human type of bacillus was obtained from 3—from the bronchial glands in one case, from the spleen in another, and from the mesenteric glands and meninges in the third. In 2 of the 5 cases both human and bovine bacilli were found, once in the bronchial glands and spleen, and once in a case in which the bronchial glands, meninges, lung, and mesenteric glands were all affected. There could be no doubt as to the presence of both types of bacilli in these two cases.

Of 9 cases of tuberculosis of the cervical glands the human virus alone was found in 6, whilst in 3 the bovine type only was found.

Of 29 cases of primary abdominal tuberculosis 14 yielded bovine tubercle bacilli only and 13 human tubercle bacilli only, whilst in 2 cases both types of bacilli were demonstrated and separated. Of the 14 cases containing the bovine bacillus 10 were children between 1 and 3 years of age, 3 between 4 and 5, and 1 was 8 years of age; and of the 14 cases 6 died from generalised tuberculosis, 2 from tuberculous peritonitis, and 3 from tuberculous meningitis; in 2 death followed cicatrisation of the gut and 1 died from non-tuberculous pneumonia. Of the 13 cases in which the bacillus of human type was separated, 12 died from tuberculosis and 1 from streptococcal pericarditis and pleurisy.

In view of the experience of some of our most reliable surgeons, it is interesting to find that of 14 cases in which bones and joints were affected, and from which the scrapings of the joint and the discharge from lumbar, scapular, sacral, and rib abscesses were examined, "human bacilli" were found in all, whilst from 1 case only was the bovine bacillus also obtained.

Three other cases in which the kidney was affected in one, the suprarenal in another, the testicle in another, all contained the human bacillus and the human bacillus only.

Consideration of Results in Human Cases.

Thus it is seen that of the 108 cases of human tuberculosis investigated, 84 yielded "human tubercle bacilli" only, and 19 "bovine tubercle bacilli" only, but that in 5 both types were undoubtedly present.

A careful analysis of the cases in which the bovine tubercle bacillus was found discloses evidence of infection by the alimentary canal—i.e., much of it is cervical gland tuberculosis and primary abdominal tuberculosis. In 38 such cases it is found that 17 are due to the bovine tubercle bacillus alone, 19 to the human bacillus alone, and 2 to both types of organism, whilst of the primary abdominal cases alone, of which there are 29, the bovine bacillus is present in 16, whilst in 14 (nearly 50 per cent.) it is the sole infective agent present.

In regard to the cases in which irregular results have been obtained, the Commissioners came to the conclusion that mixture, not modification, must for the present be accepted as the explanation. Though they claim that modification *may* take place, they have not been able to obtain much evidence on this point; whilst in the cases in which they have been able to carry out a complete investigation it has been possible to demonstrate the presence of the two types of bacilli and to prove by cultural and inoculation characters the separate identity of these two forms.

Viruses from Cases of Lupus.

The Commission lay special stress on the tuberculous viruses obtained from certain other cases of human tuberculosis—tuberculous lupus—as they found that the bacilli from this source presented characters markedly divergent from those of bacilli derived from ordinary tuberculosis. Tuberculous lupus is usually limited to the skin, has a very chronic course, and is not usually associated with internal tuberculosis, even the lymph glands in the neighbourhood of the primary disease remaining uninvaded. None of the patients examined had been treated in any way, except by scraping or curetting. The results obtained are so important that they may be given *in extenso*.

In 1 case only was the extremely virulent bovine bacillus with all the true cultural characteristics of Class I., Group 1, isolated. This, as regards its virulence for the rabbit, calf, monkey, and guinea-pig, corresponded with the bovine bacillus. In 6 cases the bacillus separated had the characteristics of the bovine bacillus: 1 in Class I., 4 in Class II., and 1 in Class III, but all of them had a lower virulence for the calf than had the bacillus obtained from bovine sources. In rabbits they produced generalised tuberculosis, which, however, ran a much slower course than that produced by the bovine bacillus; whilst in guinea-pigs and monkeys the disease produced was less severe than that set up by a similar dose of either the bovine bacillus or the human bacillus.

One other member of this group grew like the bovine bacillus, Class III., but had a low virulence for the calf, not higher than that of the human tubercle bacillus; it was very slightly more virulent for the rabbit, producing fatal tuberculosis when injected intravenously, and when injected subcutaneously produced chronic tuberculosis; whilst its virulence for the monkey and the guinea-pig was like that of the above series, lower than that of either the bovine or human tubercle bacillus.

Another bacillus of this group, also growing like Class III. of the bovine bacillus, but with a slightly pigmented growth on serum, had a virulence for the calf about equal to that of the bacillus of human tuberculosis, whilst for the rabbit, guinea-pig, and monkey its virulence was lower than that of either the bovine or human tubercle bacillus.

Then follow a series in which all the cultural characters resemble those met with in the human type of bacillus. The virus separated from 2 of these cases was equal to the human tubercle bacillus in virulence for the calf, rabbit, monkey, and guinea-pig. Five others of this group resembled the human bacillus as regards virulence for the calf and rabbit, but were less virulent for the monkey and guinea-pig. Four others exhibited an exceedingly low virulence not only for the calf and rabbit, but also for the monkey and guinea-pig, in every case the virulence falling below, and in 1 case at least very much below, that of the human tubercle bacillus for the above animals. It was in this group of tubercle bacilli—i.e., those obtained from lupus—that the only definite evidence of modification was obtained, but on reference to the Report, pp. 18, 19, it will be found that in 2 cases at least on passage of the virus through animals the virulence was increased, a fact of great scientific interest, whatever may be the importance of the matter from the practical point of view.

TUBERCULOSIS IN SWINE.

Tuberculous material was obtained from certain other sources—from 63 cases of tuberculosis in swine pure cultures were obtained in 59 cases. These cultures were very fully examined in order to determine to which type they conformed most closely; they were chiefly from cases of tuberculosis of abdominal origin, and in 26 the disease was

localised, in 33 generalised. Material was obtained in 44 cases from the submaxillary glands, in 4 from the bronchial glands, in 2 from the spleen, in 2 from the mesenteric glands, and in 1 each from the submaxillary and bronchial lymphatic glands, from skin, bone, and joint, the lung, and from an udder and an inguinal gland. In all but 4 of the 59 cases cultures were obtained from the original material, and in the 4 exceptional cases it was obtained after one passage through the guinea-pig. It is important to remember this, as the avian bacillus may readily be lost during passage through the guinea-pig.

It was found that in the localised tuberculosis of the pig the lesions might be produced by either the bovine, the human, or the avian virus; usually, however, the bovine bacillus is the agent at work, as out of the 26 cases of localised disease, the bovine bacillus only was found in 18, the human in 3 only, and the avian in 5 only. In the cases of generalised tuberculosis of swine, on the other hand, the bovine bacillus alone was found in 32 of the 33 cases, the other case being a mixed infection in which both the avian and the bovine bacillus were at work. In 50 out of the 59 cases, then, the bovine bacillus only was found, in 3 the human bacillus only, in 5 the avian bacillus only, and in 1 there was a mixed avian and bovine infection.

All of these 50 bovine cases gave cultures identical in character with those described above as being characteristic of the bovine tubercle bacillus, and with one exception they all had the full bovine virulence. The bacilli of the human and avian types corresponded both in cultural characters and in virulence to the corresponding types already described.

From the fact that we have the bovine form in local tuberculosis, that we have similar cases in which only the human and avian varieties are present, and that we may have the avian virus mixed with bovine, it is obviously imperative that all the lesions of swine tuberculosis should be treated as containing virulent tubercle bacilli, since the means of differentiating these forms can never be rendered available for rapid diagnosis, especially in the conditions under which swine must be slaughtered and dressed.

TUBERCULOSIS OF THE HORSE.

Tuberculosis of the horse, it was found, corresponded somewhat closely to tuberculosis of swine, in so far that it is primarily an infection of the glands and organs associated with the alimentary tract. Five cases were examined. In 1 there were tuberculous lesions in the mesenteric glands and spleen, in 1 the mesenteric glands alone were involved, in a third the spleen was the only organ involved, whilst in the 2 remaining cases the mesenteric glands, spleen, and lungs were all affected. In 2 of the cases the bacilli separated corresponded in cultural characters to the bovine tubercle bacillus, Class I., in which the growth is very dysgonic. One grew rather more readily and was placed in Class II., and 2 that grew more readily still were relegated to Class III. These cultural characters were retained even after prolonged subculture; moreover, prolonged passage experiments failed to alter either their cultural characters or their virulence. The virulence of these organisms, however, did not correspond to what was anticipated.

The bacilli isolated from three of the five viruses, two in Class I. and one in Class II., were similar to the bovine tubercle bacillus in their virulence for rabbits and guinea-pigs, and two of them tested on calves and pigs produced generalised fatal tuberculosis. The bacilli isolated from the other two of the five viruses gave different results. They closely resembled each other in the following points: the bacilli, although they had the cultural characters of the bovine tubercle bacillus, differed from it in that they did not produce an acute disease in calves when doses of 50 mg. of culture were given subcutaneously. Less severe disease was produced by them than by the bovine bacillus when injected into rabbits and monkeys; and although they were capable of producing acute disease in pigs and guinea-pigs, these animals survived longer after inoculation than they did after inoculation with the bovine tubercle bacillus. On the whole, however, the properties of these viruses resembled those of the bovine tubercle bacillus more closely than they did those of the human or avian type. In passage experiments the virulence was sometimes increased, but the cultural characters remained unaltered.

TUBERCULOSIS IN OTHER ANIMALS.

In addition to the forms of tuberculosis above mentioned tuberculous lesions were examined in the following animals—gnu, antelope, rhesus monkey, chimpanzee, and cat. In the first four cases the human tubercle bacillus was apparently the cause of the naturally acquired disease. In the case of the cat, however, a culture isolated direct from the mesenteric gland grew like the bovine tubercle bacillus, and produced fatal generalised tuberculosis in rabbits. Owing to the small number of cases investigated no conclusions can be drawn as to the relative frequency of infection of such animals by the human or bovine bacillus.

Avian tuberculosis we find was investigated in three fowls, three pheasants, a pigeon, a demoiselle crane, and a Senegal touracou. In all cases the bacilli isolated proved to be identical with, and had the characters and properties of, the avian tubercle bacillus.

BEHAVIOUR AND FATE OF BACILLI IN THE TISSUES.

One of the most important questions that had to be investigated was the behaviour and fate of bacilli in the tissues of animals inoculated and the nature and history of the lesions produced. The results of the interaction of the bacilli and the tissues, the distribution of the bacilli and their fate, have an important bearing on the relation of the three types of bacilli to each other, in that they enable comparison to be made of the effects in animals of each of the several types. The results of the observations on the lesions produced by the different methods of inoculation and feeding, and on the sequence of the lesions, have, of course, a bearing on the question of the seat of primary tuberculosis as it occurs in man and animals.

One of the most important observations made during the course of the work of the Commission was that made by Dr. L. Cobbett, who found that in calves human tubercle bacilli, after subcutaneous injection, "are frequently present in the organs and glands of bovine animals several months after they have been injected subcutaneously with human tubercle bacilli." In the early stages of invasion these bacilli produce no visible lesions in the organs, but after some months their presence may result in the formation of minute fibrous or calcareous tubercles which are non-progressive. Dr. A. Stanley Griffith and Dr. F. Griffith, carrying out similar experiments on the calf, monkey, pig, cat, rabbit, guinea-pig, rat, and fowl, whether injecting the bovine or the human bacillus, found evidence in all cases of dissemination after the death of the animals, the bacilli being found in the blood, lungs, and the other organs of the body.

It is evident then that after subcutaneous inoculation rapid and abundant distribution of bacilli over the body takes place, provided the infective dose has been large and the tissue conditions of the animal such as to allow it to take full effect. The result to the animal, if the bacilli are virulent, is that they produce almost at once and in many different parts of the body lesions of greater or less size, just as does the bovine bacillus. In the case of the human bacillus injected into a resistant animal, although the bacilli are distributed exactly as are the bovine bacilli, no progressive lesions are produced, though the indolent non-progressive tuberculous foci seen in the internal organs of so many of the calves subcutaneously inoculated with the human bacillus may be induced.

The effects obtained by the administration of tubercle bacilli along with food are dealt with. On giving large doses of the bovine bacillus to dogs and pigs it was found that these bacilli pass through the mucous membrane of the intestine within a comparatively short space of time and become lodged in the adjoining lymphatic glands. The general results of other experiments made by Dr. Stanley Griffith on pigs, goats, and cats show that after ingestion of tubercle bacilli the distribution in the organs of the body is much slower than after subcutaneous injection, not only in the case of bacilli of the human type, but also with those of the bovine type. In these experiments the bacilli which had actually passed through the mucous membrane of the intestine were arrested in the adjacent glands, but some appeared to have passed into the lungs and other organs of the body.

Experiments on the excretion of the tubercle bacilli in the milk of healthy cows and goats after subcutaneous or intravenous inoculation have shown that inoculation of large doses, whether of human or bovine bacilli, may result in the excretion of similar tubercle bacilli in the milk of the cow

and of the goat without any disease of the udder being produced, and in the case of the human bacillus there can be no doubt that it is present in the milk for a long period after inoculation.

As to the character of the lesions produced, basing their conclusion on the careful series of observations made for them by Dr. A. Eastwood, the Commissioners maintain that there is no essential difference in the structure of the tuberculous lesion produced experimentally in animals whether by the bovine tubercle bacillus or the human bacillus, whilst even lesions produced by the avian bacillus can sometimes only be distinguished from lesions caused by the other two types by microscopic examination.

Modification of Bacilli.

The question of modification of bacilli the Commission consider from two standpoints—that dealing with modification as it might take place (*a*) under natural conditions, and (*b*) under experimental conditions.

(*a*) As regards the first of these it appears that from all the cases of bovine tuberculosis and in tuberculosis of most mammals only one type of bacillus was isolated—the bovine type. Again, from all birds suffering from natural tuberculosis, only one type was isolated—the avian type. On the other hand, however, from the tuberculous cases other than lupus in human beings bacilli of two types were isolated—the bovine from some and the human from others, whilst in a few cases *both* types were obtained from the same individual. From pigs all three types were isolated. From cases of tuberculous lupus in the human subject, and from cases of equine tuberculosis, bacilli were isolated, some of which conformed fairly closely to one or other of these types, but many of them did not correspond in pathogenic effects to any of them, for of 17 cases of human lupus investigated in eight the culture was bovine in character, but had a virulence for animals considerably below that of the bovine bacillus, whilst in nine of these cases the culture obtained was human in character though the bacillus had a virulence below that of the human type of bacillus. Again, the bacilli isolated from two horses affected with tuberculosis produced results similar to those produced by certain dysgonic lupus bacilli. In what light, then, are these lupus and equine bacilli to be considered? Are they independent fixed types, or are they modifications, on the one hand, of the bovine tubercle bacillus, or, on the other hand, of the human tubercle bacillus?

Were virulence to be considered a fixed quality it would be necessary in order to classify the lupus viruses to recognise several new types. There would be those which, though growing like the bovine bacillus, differ in virulence not only from this bacillus but amongst themselves. Moreover, it would be necessary to accept several new types amongst those which, growing like the human bacillus, again differ both from it and from one another in virulence. It is impossible, however, to admit that every case of lupus must have been infected from a like case or by some acid-fast saprophyte resembling the tubercle bacillus. The results of the Commission's investigation of lupus, then, do not lead them to add a plurality of new types of tubercle bacilli to the three already mentioned. They incline rather to the opinion that under certain natural conditions and within certain limits there may be modification not only of cultural characters but of virulence.

(*b*) They are unable to offer any experimental evidence in support of this thesis, for in experiments specially designed to produce modification of the bacillus (bovine and human) in the tissues the results were negative, as were also those from experiments designed to modify the virulence of the avian tubercle bacillus. In spite of this and of the fact that the only variations from the three types occurred in cases of lupus and in equine tuberculosis, the evidence under (*a*) is so convincing that the Commissioners consider that they are justified in the attitude they assume on this very important question.

CONCLUSIONS OF THE COMMISSION.

Briefly the conclusions of the Commissioners are as follows:—

1. *Whether Tuberculosis in Animals and Man is One and the Same.*

To this they reply, the question of the identity or non-identity of a case of tuberculosis in one animal with a case in another animal must depend upon the identity or non-identity of the bacilli causing the lesions, and they point out that the characters which fix the species of pathogenic bacteria are (*a*) their morphology under the microscope, (*b*) their appearances in artificial culture, and (*c*) their pathogenic properties.

Taking these three factors in turn they demonstrate that: (*a*) the human and bovine types of bacilli are morphologically indistinguishable, but that they differ appreciably in respect of their cultural characters and their pathogenic properties. As regards (*b*), they maintain that the only difference in respect of cultural characters between the above two types is that the human type exhibits great luxuriance of growth on whatever medium it is cultivated. The bovine bacilli, whilst varying considerably among themselves in this respect, as a group grow much less luxuriantly on artificial media, though the gap that separates those of them that grow most abundantly from bacilli of the human type is certainly not a very wide one. (*c*) Guinea-pigs, chimpanzees, and monkeys are all highly susceptible to the attacks of both the human and the bovine tubercle bacillus, and, more important still, the disease produced in these animals, whether by one type or the other, is identical both histologically and anatomically.

It is interesting to note that in cases of fatal tuberculosis occurring in the human subject, whether the disease was caused by the human or the bovine type of bacillus, similar features characterised all; the clinical histories were alike, there was a fatal termination, and the lesions found after death were anatomically indistinguishable in the two sets of cases.

With regard to the lesser virulence of the human bacillus towards the calf and rabbit, goat and pig, although it is as virulent as the bovine bacillus for the monkey and the guinea-pig, the question has been asked, Is the human tubercle bacillus a modified bovine tubercle bacillus, and if it is, is the modification permanent? From the modification experiments devised by the Commission and carried out under their supervision it appears to them that transmutation of bacillary type is exceedingly difficult, if not impracticable, in the laboratory; though in view of certain instances in which both types were obtained from one and the same human body, they are not prepared to deny the possibility of transmutation under natural conditions, especially since the bacilli isolated from cases of lupus and of equine tuberculosis had the ordinary cultural characters of the bovine type, accompanied, however, by a degree of virulence for the calf and rabbit no greater than that usually associated with the human type of tubercle bacillus. In this instance the probable explanation appears to be that they are bacilli of bovine origin which have lost the higher degree of virulence for certain animals so characteristic of the type usually associated with tuberculosis of the bovine animal. If this view be correct, difference of virulence for the calf and rabbit, however frequently met with in actual experiment, is insufficient to establish the non-identity of the human and bovine types.

There would, therefore, remain only slight cultural differences on which to base the conclusion that the human and the bovine types are not identical, and the Commission prefer to regard these two types as varieties of the same bacillus, and the lesions which they produce, whether in animals or in man, as manifestations of one and the same disease.

2. *Whether Animals and Man can be Reciprocally Infected with Tuberculosis.*

With regard to the second term of the reference the Commissioners speak in no uncertain fashion. They point out that by subcutaneous inoculation the human type of tubercle bacillus is transmissible in some degree to many different species of animals, but for most of these animals a large dose is necessary to produce the characteristic tuberculous lesions. The most refractory animals to the human bacillus are cattle, pigs, and fowls. Rabbits are somewhat less susceptible to the attacks of this bacillus. On the other hand, mammals in general are very susceptible to infection by the bovine type of bacillus, whether such bacilli are derived from man or animals. It is interesting to note that the chimpanzee, an animal closely related to man, is equally susceptible to the bovine and to the human tubercle bacillus, and in view of this and the above facts the Commission conclude that *mammals and man can be reciprocally infected with tuberculosis.*

3. *Transmission of Tuberculosis from Animals to Man.*

In answer to the third term of the reference, Under what

conditions, if at all, does the transmission of tuberculosis from animals to man take place, and what are the circumstances favourable or unfavourable to such transmission? they hold—

(*a*) That the unmodified avian tubercle bacillus is a negligible factor in the production of human tuberculosis;

(*b*) That animals capable of suffering from tuberculosis of the human type in a severe generalised form are comparatively few; that none of these active multipliers of human tubercle are common food animals, and that the cow under natural conditions has never been found to eliminate human tubercle bacilli in her milk; that the pig, however, must be regarded as a possible source of infection to man, as the human type of bacillus has been demonstrated in the tuberculous lesions occurring in this animal;

(*c*) That although only rarely has a pulmonary lesion in man yielded the bovine bacillus, in nearly one-half of the cases of young children dying from primary abdominal tuberculosis examined, the fatal lesions could be referred to the bovine bacillus alone. Moreover, in children and adolescents suffering from cervical gland tuberculosis, a large proportion of the cases examined were the result of infection with the bovine tubercle bacillus.

Finally, the Commissioners record their profound conviction that (*a*) a considerable proportion of the tuberculosis affecting children is of bovine origin, more particularly that which affects primarily the abdominal organs and the cervical glands; (*b*) both these forms of tuberculosis are often due to ingestion of tuberculous infective material; and (*c*) much of the tuberculosis of childhood must be ascribed to infection with tubercle bacilli of the bovine type, transmitted to children in meals consisting largely of the milk of the cow.

CONCLUDING REMARKS.

Mr. President and Gentlemen, I am afraid that in trying to enter into such an enormous mass of detail I may have put too great a tax on the patience of this Conference. I thought it well, however, in view of the differences that still separate various schools of workers on this subject, to place the results of the Commission before you and ask you to accept or reject them on their merits, and not because they have been obtained in this school or that. All here are desirous of coming to well-founded conclusions. The matter at stake is the health, not of a nation only, but of a great part of the population of the world.

If differences still exist between us, must it not be that special conditions prevail in certain countries—conditions that are not present in others? It has been suggested that different methods are used in different laboratories, and that this may account for the different results obtained. Has not the time come, then, for us to inquire into these conditions? Why should we in England be able to find two undoubted cases of "bovine tuberculosis" of a distinctly pulmonary type, and these amongst only 28 hospital cases specially examined, or over 7 per cent., whilst all other recorded observations carried out on the same lines give only two other cases out of over 770 patients examined, or only 0·26 per cent? I maintain that this should be followed up, and that a similar investigation might be carried out in Edinburgh (where many years ago I found so much tuberculosis in children, the origin of which tuberculosis I believed to be bovine); the proportion of adult cases might be higher still. I mention this fact as I am informed by Dr. James Ritchie that some such investigation may be set on foot. Then, too, has not the time come for us to test one another's methods on a large scale? This would involve an enormous amount of work, but is surely worth consideration if thereby we can get into closer agreement on this important matter.

I certainly am not at one with those who maintain that bovine tuberculosis is a negligible quantity in respect to the spread of tuberculosis amongst human patients. I am of opinion, rather, that as we go more deeply into the subject, and extend the scope of our inquiries, the bovine side of the question comes to take a larger and larger place in our scheme, especially, of course, in connexion with surgical and abdominal tuberculosis, but also, in a minor degree, in pulmonary tuberculosis, not only in the child, but even in the adult.

We are in no danger of minimising the part played by infection to and from the lungs. We all agree on that, but I and others still maintain that the "bovine" aspect of the question must not be neglected either on its experimental, its clinical, or its preventive side.

THE MEDICAL TREATMENT OF CHOLELITHIASIS.

BY PAUL MAYER, M.D.

IN recent years our views upon gall-stones have undergone a substantial modification, mainly attributable to the great advances in the surgery of the liver and gall-bladder. By these examinations *in vivo* we have gained a deeper insight into the pathological processes in cholelithiasis, and through this experience we are now enabled to make far more accurate diagnoses than were possible before the surgical era. The remarkable results of the surgical treatment of gall-stones are universally recognised, and the physician has certainly learnt to appreciate many dangers of the complaint which were perhaps formerly under-estimated. No agreement between physicians and surgeons as to the indications for surgical interference could at first be attained, because certain operators regarded the operation as indicated after the first attack of biliary colic and claimed cholelithiasis for their own exclusive domain. A solution of the divergent views could be achieved only after the most distinguished surgeons had substantially limited the indications for operation. We know to-day that in spite of the perfection of surgical technique the dangers of operative interference are not to be neglected, that the operation does not absolutely protect the patient from recurrence, and that the adhesions occasionally resulting from the operation may give rise to considerable discomfort and pain. On the other hand, the results of medical treatment are very satisfactory if it is instituted immediately after the first attack of biliary colic and is carried out in the correct manner. It is only possible to draw up quite general rules as to the indications for operative interference, since the question of operation has to be decided in each individual case after careful consideration of all the factors concerned. According to my own experience the following indications for an operation appear to be established and to coincide with those of most surgeons of the present day.

1. Acute cholecystitis should be treated medically; only the most severe form, cholecystitis acutissima, belongs to the surgeon.

2. Chronic relapsing cholecystitis should be treated by operation only when all the suitably employed agencies of medical therapy have failed.

3. Operation should be performed in chronic obstruction of the ductus choledochus if two to three months of medical treatment are without effect. In cases with prolonged remittent fever, rigors, and bad general condition the operation is unquestionably indicated.

4. Hydrops vesicæ felleæ demands operation only if there are persistent and very severe irritative phenomena.

5. Empyema of the gall-bladder and all suppurating processes in the region of the gall-bladder and in the liver should be operated upon.

6. Adhesions about the gall-bladder should be treated medically so long as the inconvenience produced is not marked. In the most severe cases operation is required.

7. Acute and chronic pancreatitis resulting from cholelithiasis belong to the surgeon.

When it is remembered that all the forms and complications of cholelithiasis for which an operation is indicated are relatively uncommon in proportion to the remarkable frequency of the complaint, it is obvious that for the great majority of patients with gall-stones medical treatment alone comes under consideration. A uniform conception concerning the methods and objects of medical treatment has nevertheless not yet been arrived at. In general the medical treatment of cholelithiasis rests substantially upon the basis of Naunyn's views. Naunyn, together with his pupils and numerous other observers, has recognised stasis of the bile as the essential for all calculus formation and has shown what an important rôle inflammation plays in gall-stone diseases. Since Naunyn, nearly all observers have accepted the view that bacterial infection of the stagnating bile is indispensable for the production of concretions. Nevertheless, as a result of the brilliant researches of Aschoff and Bacmeister, convincing proof has been given that simple biliary stasis without bacterial infection can lead to the formation of concretions, and that in many cases a non-inflammatory gall-stone condition precedes the inflammatory gall-stone disease.

Aschoff and Bacmeister have shown that the actual structure of concretions indicates different methods of origin. In numerous cases gall-stone disease is initiated by the formation of the "radiating cholesterin stone," which stands in a peculiar relation to all other concretions. The cholesterin of which the stone is composed is not produced by the epithelium of the mucous membrane of the gall-bladder, as was suggested by Naunyn, but originates from the bile itself, and is separated as an autochthonous decomposition product of the bile without infection when stasis of the bile occurs. The "non-inflammatory radiating cholesterin stone," which is almost always solitary and may remain for years in the gall-bladder without producing any irritation, can, however, lead to an inflammation of the gall-bladder and thus induce inflammatory gall-stone disease. The stones, which start upon the basis of an infection, are differentiated from the non-bacterially produced radiating cholesterin stone by their richness in calcium, which is for the most part supplied by the inflammatory exudate. The radiating cholesterin stone presents an entirely modified appearance in chronic inflammatory gall-stone conditions, since abundant calcareous layers become deposited upon the radiating stone. By this means the mixed stone is produced, having for its nucleus a distinct radiating cholesterin stone, with a covering of lime salts, which is more marked in proportion to the intensity of the secondary inflammation and the associated excess of lime salts in the bile. Besides these mixed stones, other cholesterin-calcium stones are formed as primary concretions and are characterised by great variety of form. As already mentioned, according to the researches of Aschoff and Bacmeister, inflammatory cholelithiasis is preceded in many instances by a primary non-inflammatory stage of stone formation. The inflammatory stage can, however, start primarily when infective agents gain access to the gall-bladder very soon after the origin of the stasis. In such cases a formation of inflammatory cholesterin-calcium stones occurs primarily, and one finds neither the solitary cholesterin stone nor the above-mentioned mixed stones.

The guiding principles in the treatment of cholelithiasis are derived from the well-established facts that stagnation of the bile is the fundamental condition for the production of concretions, and that in chronic inflammatory cholelithiasis infection plays the most significant rôle, infection in its turn being favoured by stasis of the bile.

Since the formation of stones is always a secondary phenomenon, it would be irrational to direct our treatment exclusively against the stones themselves, because, even after the expulsion of some of the stones, if the stasis and inflammation continue, stones still remaining behind may grow larger, and new stones may form. As a consequence, the conviction becomes more and more firmly established that the object of medical treatment consists not in the expulsion of the stones, but in the prevention of the formation of new stones by combating stasis and inflammation, and in bringing stones already present to rest, thus inducing a latency of the disease—which is in effect almost a recovery, since stones often remain for years as harmless foreign bodies as soon as the flow of bile becomes normal and the inflammatory process ceases.

It is not my intention to examine in detail all the questions that come into consideration in the treatment of cholelithiasis. I wish, however, to notice certain specially important points concerning which a consensus of opinion has not yet been arrived at, and, most important of all, to discuss a principle of treatment that has always played an important rôle in the treatment of cholelithiasis—viz., the principle of "cholagogue action."

At the time when the removal of the stones was regarded as the object most to be desired it was thought that the expulsion of the concretions would be most effectively assisted by means of agents promoting the flow of bile. But even though the paramount object of medical treatment is no longer considered to be the expulsion of the stones, the principle of cholagogue treatment has not diminished in importance, since it is often suggested that by this means biliary stasis may best be treated.

The numerous researches instituted to investigate the action of different substances upon the secretion of bile have afforded such contrary results that at the present time the greatest confusion prevails in regard to the whole subject. The reasons for this become clear as soon as it is realised that these researches are subject to numerous sources of error which are in part unsurmountable, and further that individual workers have chosen varying methods of research, with the consequence that the results obtained are quite incapable of comparison. It is well known that these experiments are usually carried out on dogs in which a fistula of the gall-bladder has been made after ligature of the ductus choledochus, so that the bile secreted by the liver is conducted externally through the gall-bladder. Since the gall-bladder does not now serve as a reservoir for the bile, but is continually emptied, the outflowing bile must have an entirely different constitution from the normal; and since the bile flows without the normal pressure resistance, it follows that a factor is excluded which must certainly be of importance in the formation of bile in the liver.

Moreover, by many authors the fact has not been sufficiently recognised that certain constituents of bile, especially the bile salts, are re-absorbed in the intestines, and, as Stadelmann has shown, are again excreted with the bile up to the proportion of two-thirds, so that these substances move in a circulation between the liver and the intestine; consequently, when the bile is discharged through the fistula of the gall-bladder it gradually diminishes in solid constituents. To allow for this condition certain investigators have either permitted their experimental animals to lick the bile as it flows, or have given to them a definite quantity of bile. In this connexion, however, it has often been lost sight of that in these circumstances an uncontrolled factor is introduced, since the animals receive every day a bile of differing constitution. A further point is that frequently the output of bile has been studied only for a few hours, in spite of the fact that its secretion may vary very widely in the course of the day; and even in the relatively few experiments which have lasted as long as 24 hours the fact has not always been sufficiently taken into account that in different animals—indeed, even in one and the same animal—the quantity and composition of the bile vary within wide limits in spite of similar diet. But how often have far-reaching conclusions upon the action of this or that drug been deduced from small differences in the secretion of bile! Finally, we must emphasise the point that the diet has been handled by different investigators in very varying fashion, since the action of individual substances has been studied sometimes in conditions of hunger, sometimes on low diet, and sometimes with maximum amounts of food.

In this state of matters it is not surprising that researches upon the modification of the secretion of bile have led to such divergent conclusions. All that can be regarded as established is that the administration of bile itself increases the quantity of the bile secreted and increases the amount of water and solid constituents proportionally to the increased flow. Even in relation to salicylic acid, the cholagogue effect of which next to bile itself has been most frequently and constantly observed, there is as yet no complete agreement, some workers having found an increased output of bile of normal composition, while the majority have found increased secretion of bile with a diminution in the percentage of solids. In regard to all other drugs there exists such a maze of contradictions that I cannot here discuss them. The few researches carried out on men with gall-bladder fistulæ have advanced our knowledge of the problem of cholagogue agencies even less than experiments on animals.

If now it be asked to what degree the particular means which induce increased secretion of bile may be of value in the treatment of cholelithiasis, it may be affirmed that the value of such agencies would be incontestable if the formation of bile were diminished in gall-stone disease. It is not known, however, whether the bile secretory function of the liver cells is damaged in cholelithiasis or in what direction it is altered. At all events, the principal point is, not that too little bile is formed, but that the bile which is formed stagnates, especially in the gall-bladder and secondarily in the bile-ducts, and consequently its overflow into the intestine is rendered more difficult. It is well known that the filling of the gall-bladder is dependent upon the tonus of the choledocho-duodenal sphincter, that powerful constricting muscle in the pars intestinalis of the ductus choledochus. This sphincter is opened only at definite times, chiefly during digestion, and it opposes a powerful obstruction to the bile, so that this is forced to flow towards the place of less resistance—viz., through the cystic duct into the gall-bladder. At the beginning of digestion,

as soon as the sphincter is opened, the thickened bile from the gall-bladder, mixed with the bile now abundantly secreted by the liver, reaches the duodenum. Since the bile in cholelithiasis stagnates in the gall-bladder more than under normal conditions and becomes more viscid and thick, and therefore is hindered in its outflow during the periodic opening of the sphincter, it is above all things our object to promote its expulsion into the intestine. It has been widely accepted that this object can be achieved through an increased secretion of bile, because it is believed that through the increased pressure arising from the more abundant flow of bile, the bile is more easily driven out into the intestine. This sounds quite plausible, but it is nevertheless by no means established. If the sphincter muscle did not exist and the bile simply flowed out continuously, then, indeed, the stagnating bile could be forced more easily into the intestine by the increased pressure. But it is quite irrelevant to the function of the sphincter (which is of paramount importance for the whole question) whether the bile formation of the liver is increased; for the sphincter is opened only through reflex impulses originating in the intestine, principally when chyme arrives in the duodenum from the stomach. This sphincter opposes a resistance to the bile-stream corresponding to a pressure of about 700 mm. of water, while the normal secretion pressure in the bile ducts is equal only to about 200 mm. of water. Stadelmann considers it very doubtful whether cholagogue agents can increase the pressure in the bile ducts to such an extent that the resistance of the sphincter can be overcome. Other authors also regard the use of cholagogue agents in cholelithiasis as irrational, or at any rate as practically useless, and I associate myself with this view the more strongly since I am convinced that in certain stages of the disease these agents may induce actually dangerous consequences. For example, when in a case of chronic obstruction of the ductus choledochus so large a stone is fixed that the obstruction cannot be overcome, even by the maximum pressure of the bile, each increased production must lead to a greater congestion of the bile and to a greater loading of the blood with bile. In such cases it would be desirable actually to reduce the bile formation in the liver.

The rise of pressure produced by the increased secretion of bile may thus not be able to influence biliary stasis. It is, however, possible to produce a more easy outflow of bile into the intestine if we make the bile more *fluid*. It appears to be established that certain so-called cholagogues produce more fluid bile, and on this ground it cannot be denied that they may have a certain value in promoting the outflow of bile. But the only determining factor in their action is the thinning of the bile, and not the increased pressure produced by the augmented secretion of bile. This thinning of the bile after the administration of certain substances can be produced without increasing its quantity, indeed even with a reduction thereof, as Winogradow has clearly demonstrated. But if by some substances the thinning of the bile can be produced and its outflow into the intestine during the periodic opening of the sphincter be promoted, it is not at all necessary that increased secretion should play any part. The increased pressure thus produced if it occurs will have no detrimental effects so long as there is only stagnation of the bile. Increased production of bile can, however, become a danger when an impassable obstruction occludes the bile ducts, because then the pressure becomes considerably raised and the stasis is increased.

In my experience of all the substances recommended for this purpose I can attribute a genuine value to *salicylic acid* only. Salicylate of soda with extract of belladonna I have often found valuable in practice. Nevertheless, I do not at all believe that the salicylic acid exerts its effects on account of its cholagogue action, but am much more strongly of opinion that its chief influence is upon the inflammatory symptoms. Consequently I have seen the best results with salicylic acid in acute and chronic cholecystisis, especially with simultaneous rest in bed and the application of hot compresses. In such cases I give from two to four times a day a powder of sodium salicylate 0·5 grm (8 gr.), and extract. belladonnæ 0·01–0·02 grm. (⅛–¼ gr.), dissolved in warm water. With all the other so-called cholagogue agents, which are always being vaunted as curative agents for cholelithiasis, I have never obtained definite results. In my experience the value of the oil cure has not proved very great. The oil can be useful only for the simultaneous colitis or spastic constipation which not infrequently complicates cholelithiasis.

In this connexion I must refer to a drug which has long been prescribed, especially in England—viz., *calomel*. There can be no doubt that calomel does good service in many affections of the liver, and it is well known how usefully calomel influences so-called "biliousness." Several authors state that they have seen great benefit in cholelithiasis from small doses of calomel given for long periods. Personally I have used calomel for years according to the recommendation of Sacharjin in severe cases of biliary colic accompanied by constant pain and high fever. I give 0·06 grm. (1 gr.) every hour for the first three to five doses, according to the nature of the case, and afterwards every two hours until the first typical calomel stool appears. I have never exceeded eight doses—i.e., about 0·5 grm. (8 gr.) a day. Striking results are frequently obtained by this treatment, since the pains often cease at once, the fever gradually diminishes, and the whole severe symptom-complex completely disappears in a few days. How calomel acts in these cases, as also in other liver affections, has not as yet been explained in a satisfactory manner in spite of the numerous researches that have been carried out with it. The secretion of bile is somewhat diminished by calomel—a fact which also speaks against the cholagogue treatment of cholelithiasis, for calomel is more effective than all the cholagogues—and even the disinfectant action so often attributed to calomel is not confirmed by the recent researches of Knick and Pringsheim. Possibly, as Keay suggests, calomel, which expels abnormal products of digestion from the intestine, may also induce certain changes in their capacity for absorption. If the conveying of abnormal products of digestion to the liver leads to the secretion of an abnormal bile which irritates the mucous membrane of the gall-bladder and bile-ducts, calomel may thus lead to the formation of a purer, more healthy bile. By the flow of this fresh normal bile the biliary apparatus may be purified from the stagnant, thickened bile, and from inflammatory products, so that the stones come to rest.

I have already insisted on the importance of promoting the expulsion of the stagnant, thickened bile, and shown that this can be effected by making the bile more liquid. A thinning of the bile is without doubt produced, and in a less harmful fashion than by cholagogues, by drinking abundance of water, especially on an empty stomach. For this reason practically all physicians agree that abundance of fluid is very useful for patients with gall-stones. In my opinion, the water is best given on an empty stomach, and as hot as possible, for cold liquids should be strongly forbidden in cholelithiasis under all circumstances, as they frequently induce attacks of colic. I therefore recommend all these patients to drink in bed in the morning about an hour before breakfast one to two tumblers of hot water, in like manner a tumbler in the evening before going to bed, and smaller quantities frequently during the day. It is also very useful for the patients to take warm water at mealtimes. They easily become accustomed to this, and experience the less objection to the warm water the hotter they drink it. A dilution of the bile can also be effected through the rectal injection of water. The introduction of large quantities of water into the intestines has been recommended in cholelithiasis for about 30 years, and many authors have confirmed its useful action. For a long time in Carlsbad enemata of Carlsbad sprudel cooled down from 40 to 50° C. have been employed, the patient retaining them as long as possible up to an hour. These injections prove especially useful in chronic jaundice (obstruction of the common duct), and are to be recommended also in such cases when the administration of large quantities of water by the mouth does not appear advisable on account of a coexisting atony or dilatation of the stomach. They are, moreover, of special value where catarrh of the intestine is present at the same time, this condition being, as is well known, a relatively frequent accompaniment of cholelithiasis.

Besides the dilution of the bile, there are yet other factors that promote the expulsion of the bile from the gall-bladder and thus lessen stasis. Here again the function of the choledocho-duodenal sphincter comes into consideration, its periodic opening being the essential preliminary to the entry of bile into the intestine. The more frequently the tone of this muscle relaxes the more often the outflow of bile is rendered possible. According to researches into the nature of this mechanism (chiefly carried out in Pawlow's institute) the sphincter opens during digestion every time the outflow of the food from the stomach into the duodenum occurs. When the stomach is empty, or after it has discharged its contents

completely, the outflow of the bile into the intestine ceases. On this account it is advisable to allow as short pauses as possible in the passage of the chyme into the duodenum. In other words, we must give patients with gall-stones food as often as possible, a principle which was recommended by Frerichs and emphasised by Naunyn. Unfortunately, this instruction is often misinterpreted, because in the endeavour to stimulate bile secretion especially heavy meals have been recommended. A heavy meal certainly stimulates bile production much more powerfully than any drugs; but as I must again affirm, this is not at all the main object of our treatment. This condition illustrates most distinctly the real danger of marked cholagogue action. Nothing is so likely to induce biliary colic as an over-filling of the stomach, since a stone which has been quiet for months may be made to move by a single heavy meal. *The ordering of frequent but small meals forms the first principle in the dietetic treatment of patients with gall-stones.* The diet should be divided into at least five meals daily.

The patients must absolutely avoid all excess in eating, but this instruction must not be so interpreted as to lead to under-nutrition. All foods difficult of digestion which make great demands upon the digestive organs, all foods which are easily decomposed and lead to fermentation, must be strictly forbidden, because too great stimulation and overwork of the stomach can produce reflex contractions of the gall-bladder, and thus induce painful sensations or attacks of colic, and because both the stomach and intestine are often affected in association with cholelithiasis. In order to lessen the work of the stomach the patient should take food minced or in the form of purée. Very cold foods are as much to be avoided as cold drinks. In individual cases the directions must be adapted to the existing conditions of the stomach and intestines. This summarises the whole question of dietetic treatment of cholelithiasis. There is no special gall-stone diet, and a recommendation or an exclusion of certain food-stuffs, which was frequently done in older schemes of diet, is absolutely unjustified. In accordance with the principles just enunciated the diet should be as varied as possible, and only special complications on the part of the stomach and intestines, or accompanying diseases like gout and obesity, require the protein, fat, and carbohydrate to be specially regulated. By following the diet recommended, acute catarrh of the stomach or duodenum—conditions which may have the most severe consequences for patients with gall-stones, since they may spread to the bile-ducts and promote the entrance of infective organisms into those ducts—may best be avoided.

If we return once more to the chief indication for our therapeutic considerations—viz., the stagnation of the bile—we come to the last factors upon which the outflow of bile into the intestine depends. These are the intestinal movements, the action of the abdominal walls, and the pressure of the diaphragm upon the liver during inspiration. In the first place, we must mention the regular normal action of intestinal peristalsis, which is transferred to the muscular agencies of the bile-ducts and so promotes the outflow of bile. We must not go too far, however, in the treatment of sluggishness of the bowels, since too strong stimulation of peristalsis may give rise to movements of the stones and start colic. Therefore, although it is one of the most important tasks in cholelithiasis to ensure regular defæcation, especially in view of the frequency of constipation in this condition, yet the administration of drastic purgatives must be avoided, the more so because every powerful irritation of the intestine is especially dangerous in the enteritic processes which are not infrequently present.

Lastly, all those factors must be mentioned which exert an influence on the respiratory action of the diaphragm, and through this on the outflow of bile, such as the loosening of the clothes after meals, the prohibition of tight corsets, matters into which I need not further enter. From the same point of view physical exercises have been recommended, which certainly prevent stagnation of the bile.

The question of bodily movements for a patient with gall-stones is one of the greatest importance. It was a notable service of Naunyn's, and placed the subject upon the right foundation, when he ordered treatment by rest for cases with acute and chronic irritative phenomena.

Rest should be absolutely insisted upon in the first attack of biliary colic, and I regard it as one of the most important recommendations to keep the patient in bed for several days after each attack, even when it passes off quickly and gives rise to no further discomfort. The effects of rest are demonstrated in the most striking manner in cases of pronounced cholecystitis and in all chronic inflammatory irritations in the bile-ducts. In all severe cases the patient must remain in bed and should not be allowed up until all inflammatory manifestations have passed off and until no tenderness on pressure over the gall-bladder remains, a period which may extend from days to weeks according to the severity of the case. It is quite otherwise with those cases which remain free from colic for long periods and present no inflammatory manifestation, and in which we can find on examination no tenderness on pressure over the region of the gall-bladder. Physical exercises here not only are indicated, but constitute one of the most important factors in treatment. If in such patients the bodily movements are restricted, one of the most effective measures against biliary stasis and also against the entrance of infective agents into the bile-ducts is discarded, and those inflammatory conditions for which rest becomes a necessity are thus promoted.

Among bodily movements I lay great stress upon deep breathing exercises, and regard methodical breathing as very valuable. In like manner, also, certain gymnastic exercises carried out in careful fashion are especially to be recommended. All brisk movements, however, such as severe shaking of the body and the lifting of heavy objects, should be avoided. Moreover, I regard massage of the liver and gall-bladder as deleterious.

The therapeutic principles just outlined should be adhered to even during a cure at Carlsbad. The well-known results of Carlsbad cures in cholelithiasis are by no means to be explained by any cholagogue action of the waters. In my opinion, the Carlsbad waters no more possess any cholagogue action than they do a stone-expelling effect. The modes of action of the Carlsbad waters in cholelithiasis are manifold. Above all, experience teaches that they dilute the bile to a greater extent than ordinary water, and therefore promote the outflow of bile in an effective manner. It must also be borne in mind that the Carlsbad waters favourably influence the circulatory conditions in the liver and alimentary canal and the catarrhal processes in the intestine, liver, and gall-bladder. The mild stimulation of the intestinal peristalsis, the purification of the intestine from injurious products of digestion and from bacteria, and the antispasmodic action of the hot springs comprise the other principal factors which are concerned in the production of their beneficial actions, of which sometimes one, sometimes another, becomes more prominent. The total result of these effects is in the end to restore the normal flow of bile and to remove inflammatory processes; by these means are fulfilled the postulates which I have enunciated above as the object of medical treatment.

Naturally the action of the waters is shown in varying fashion according to the relations of the stones. In uncomplicated cholelithiasis, in which the stones have not yet left the gall-bladder, they come to rest through the cessation of the biliary stasis and the removal of the catarrhal changes in the mucous membrane of the gall-bladder. With patients in whom stones have already left the gall-bladder and are arrested in the bile-ducts the effects of the Carlsbad waters are not to be explained in such a simple manner. If we take, for example, a case in which a stone has entered the cystic duct, and in which an inflammatory swelling of the wall of the duct exists, then the stone becomes loosened and more easily moveable through the gradually diminishing swelling of the mucous membrane. By this means under certain circumstances an attack of biliary colic may be induced. The stone may become moved back into the gall-bladder so that the condition of latency may again be produced, or, if the concretion is small, it may be passed into the intestine. This example demonstrates that in the course of the beneficial effects of the Carlsbad waters upon the inflammatory process an attack of colic may sometimes be started, although the Carlsbad waters do not possess any real power of expelling stones, and further, that such attacks of colic by no means prejudice the good result of the cure but even render permanent benefit possible. In my opinion the fact that many patients who during the cure have attacks of colic often remain free from trouble for months or years is thus to be explained. This explanation is supported by the fact that in Carlsbad the attacks of colic often originate without marked inflammatory symptoms and are associated with relatively little pain, so that it is but seldom necessary to employ morphia.

Carlsbad.

AN IMPROVED METHOD FOR OPSONIC INDEX ESTIMATIONS

INVOLVING THE SEPARATION OF RED AND WHITE HUMAN BLOOD CORPUSCLES.[1]

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THE opsonic index was introduced in 1905–06 by Sir A. E. Wright. It was for a few years extensively practised, but has fallen largely into disuse owing to its unreliability, which was realised by the profession, who were doubtless much influenced by the criticisms published by Mr. Major Greenwood, junior, Dr. J. D. C. White, Mr. E. C. Hort, and others. In view of the value that an accurate method would possess in clinical work it seemed well worth considerable study, if the large liability to error could be removed or at least reduced.

Opsonin is the name given by Sir A. E. Wright to the substance in human blood which is understood to cause the ingestion of bacteria by the leucocytes, and since this varies quantitatively in health or disease it is important that we should be able to measure its fluctuations in any patient's blood, its increase favouring recovery from the infection and its deficiency assisting the disease.

In the opsonic test or estimation leucocytes are set to ingest bacteria when mixed and incubated with normal serum, and the same operation is conducted with a diseased serum under similar conditions. In stained films the bacteria visible in, say, 50 of such leucocytes are counted in each case and the figures so obtained are contrasted. This ratio is used as a measure of the amount of opsonin in the two specimens of blood serum. The healthy serum is taken as the normal or control.

From variations in the opsonic index of the serum of patients suspected of tuberculosis, numerous diagnoses of tuberculosis have been made, and infection by certain other bacteria has also been presumed by opsonic comparisons on similar lines. Since opsonin has not been separated from the blood, and we have no simple test for its presence, the only practical method of its measurement at present available is this opsonic test or index.

Mr. Hort took a large sample of a patient's blood, divided it into several smaller volumes, disguised the identity of the specimens, and obtained the opsonic index to the tubercle bacillus estimated simultaneously by several different operators at different pathological laboratories. These operators also measured the opsonic index of two sera which they did not know were identical. The results were discordant and may be reviewed by reference to his paper.

Mr. Greenwood and Dr. White studied the mathematical liability to error arising from the method of counting the bacteria in a random sample of the leucocytes, instead of counting those in all of the leucocytes employed in each mixture (the accurate but impracticable course, on account of the labour involved). Since my work has followed the line of weakness indicated by them, it is necessary to give the important points of their work. If, for example, in any count 200 bacteria have been seen in the 50 leucocytes, it must be remembered that each leucocyte does not contain four bacteria, but their content is any number from 0 to about 25 or more.

Now, when a film is made in which the leucocytes contain all these varying numbers of bacteria there is a great liability for the blanks (0 contents) and high contents (gluttons) to be distributed unevenly in the film. Therefore, according as the operator begins counting in part of the field rich in one type of leucocytes or the other, the figure he will obtain will be a low or high one—the most significant point. In their first communication Mr. Greenwood and Dr. White concluded, from a study of films prepared in Sir A. E. Wright's laboratory, that the distribution of leucocytes (arranged with respect to the number of ingested tubercle bacilli) was highly asymmetrical, and surmised that the variations from the mean value, exhibited by samples of 50 or 25, of a whole "population" of cells would be considerable.

In a second paper they analysed a count of no less than 20,000 leucocytes upon films prepared and counted by Dr. White. After elaborate mathematical analysis they concluded that a serum having precisely the same opsonic content as the standard might be expected once in seven trials to yield an index deviating from unity by as much as 33 per cent. in either direction. From this and further calculations they concluded that even in the case of samples of 100, it is doubtful whether single determinations which give values even beyond the limits of 1·3 to 0·7 can be regarded as satisfactory evidence of differentiation.

In the experiments I am about to detail I had the valuable assistance of Dr. Cavendish Fletcher far into the exploratory stage, but unfortunately he had to abandon the work. The first idea was not directly associated with the error emphasised by Mr. Greenwood. It may be expressed as follows. Since the leucocytes act in the opsonic mixture as bacterial magnets, then if in the two mixtures there were very different numbers of them at work, this difference might cause a variation in the degree of phagocytosis in the two cases, apart from variations in opsonin. To test this point the opsonic estimation was made of a sample of normal serum to the staphylococcus aureus, and at the moment of withdrawal of the mixture from incubation part was withdrawn into a corpuscle counting pipette, the remainder formed the films from which the ordinary opsonic figure was obtained by one worker, and the other meanwhile counted the leucocytes which had been at work. This proceeding was repeated several times at a sitting with identical materials, and from four such sittings the results shown in Table I. were obtained.

TABLE I.—*Opsonic Index (Old Method). Repeated Estimation of the Opsonin to Staphylococcus Aureus in Normal Serum and Simultaneous Enumeration of the Leucocytes per Cubic Millimetre in each Opsonic Mixture.*

Series.	Leucocytes per c.mm.	Opsonic count 50 leucocytes.	Error % *above* average.	Error % *below* average.	Mean value.	Blanks.	Worst error *above average.*	Worst error *below average.*
1	15	279	—	4	292	9	—	—
	9	337 (26/1)	15	—		9	15%	—
	14	285	—	2		7	—	—
	11	268	—	8		6	—	8%
2	18	190	11	—	170	10	—	—
	16	258 (16/1)	52	—		3	52%	—
	19	118	—	30		20	—	—
	10	114	—	33		20	—	33%
3	14	185	8	—	170	16	—	—
	9	155	—	8		14	—	—
	6	213 (23/1)	25	—		13	25%	—
	16	137	—	19		21	—	19%
	36	180	5	—		13	—	—
	12	155	—	8		14	—	—
4	12	151	—	20	190	11	—	20%
	7	191 (15/1)	—	—		7	—	—
	25	194	—	—		8	—	—
	10	224	17	—		4	17%	—
			133	132				

Average error above or below the mean value $\frac{265}{18} = 14{\cdot}7$ per cent.

Worst error *above* = 52 per cent.

Worst error *below* = 33 per cent.

All the materials were identical in each series, and the opsonic estimations made by the same operator, the observations being taken at about half-hour intervals. In all the Tables I., II., and III. the top figure in brackets signifies the highest staphylococcal content of any leucocyte in each series, and the lower figure the number of times it occurred.

From this table the following points are apparent. 1. There was a considerable variation in the number of leucocytes obtained by successive dips into the vessel containing the "washed" corpuscles. 2. This variation showed no definite association to a "steadiness" of the figure obtained by the corresponding opsonic count. 3. The opsonic figure

[1] A paper embodying the main features of this work was read to the Royal Society on March 14th, 1912.

obtained was liable to marked fluctuation, though it should have been constant, since all the materials were identical and the operator the same. 4. There was apparently some constancy of the figure obtained in those cases in which the number of blanks met during the count was the same or nearly so.

The result of this preliminary work was for the moment negative, but the idea arose from point 4 that there was a relationship between the error pointed out by Mr. Greenwood (0–25 leucocyte content) and this feature—viz., if one supposes that "blanks" were leucocytes which had not met a bacterium. Reviewing the situation, the prominent error of the opsonic index was clearly this large variation in the bacterial content of the leucocytes, and since in the ideal opsonic count the leucocytes would contain four bacteria each (if a 50 count totalled 200), it was evident that as the range of leucocyte content became smaller and approached the ideal the opsonic index would be improved in accuracy.

The next question, therefore, was: What causes this "large content variation" visible in opsonic leucocytes? A little consideration will satisfy anyone that it may be due to two main causes which may operate singly or together—(*a*) *appetite*; and (*b*) *opportunity*.

(*a*) *Appetite.*—By this we may suppose that each leucocyte has as good a chance as its neighbour in the opsonic mixture to pick up the neighbouring bacteria, yet physiologically it may be a glutton, or it may have no appetite and remain bacteria-free—i.e., a blank. This supposition of course presumes that the distribution of the bacteria amongst the leucocytes is as regular as, for instance, the black and white squares of a chess board, and also that there are plenty of bacteria.

(*b*) *Opportunity.*—In this case we may suppose that all leucocytes in the opsonic mixture have similar appetites, but are situated with very different degrees of opportunity for picking up bacteria. Some are in a zone of plenty, and others in one of bacterial famine, and therefore appear in the films as gluttons or blanks. On this supposition an uneven mixing of the bacteria and leucocytes in the serum during the process would account for the content variation.

The next question suggesting itself was: Can anything be done to remove this wide range of phagocytosis? If it be due to (*a*) appetite, then the case is hopeless, since one cannot hope in the present state of medical knowledge to alter the physiology of leucocytes in a differential sense. But if the factor (*b*), differences of opportunity, be really at the bottom of the mischief, then improvement should ensue, if an even distribution of bacteria and leucocytes could be obtained.

I shall next show in what particulars the even distribution of the bacteria amongst the leucocytes in the old opsonic mixture is faulty, and indicate the means of improvement.

The constituents of the opsonic mixture are three:—

1. *The serum.*—This should be fresh, and after clotting a clear corpuscle-free serum separates out. It is probable that equal volumes of any particular sample contain the same constituents and with this factor in the mixture I find no fault.

2. *The bacterial emulsion* should be made from a fresh culture (except when using tubercle bacilli), evenly emulsified by shaking in normal saline and, if necessary, freed from clumps by the centrifuge. Equal volumes of such an emulsion are probably of even microbic content, and this ingredient of the mixture can pass.

3. *The washed corpuscles.*—Here is a big flaw in the excellence of the material provided. Since the object of the whole opsonic process is to provide even access of bacteria to white corpuscles, it is evident that only white corpuscles should be provided, but in the old method for every leucocyte provided there are 500 useless red corpuscles, and we must next consider these red corpuscles as obstacles under the present aspect of "opportunity."

The bacterial emulsion used does not usually exceed 500 millions to the cubic centimetre, and normal blood contains 5000 millions red, and 10 millions white corpuscles to the cubic centimetre; so that for every leucocyte provided there are 50 bacteria, but surrounding this leucocyte, and hindering the access of the bacteria to it, there are 500 red corpuscles—a most unfortunate arrangement. It will be readily conceded that there must be great difficulty in evenly mixing such fluids, containing so many millions of suspended bodies, by means of a platinum wire or pipette and teat; personally, I doubt if it can be done before the mixture has largely dried on the slide or other mixing surface. From these considerations it is highly probable that the presence of the red corpuscles renders the even mixing of the essential opsonic constituents very difficult, if at all possible, and it is certain that their presence constitutes a barrier to the free access of bacteria and leucocytes.

Since their removal would improve opportunity, the next experiments consisted in obtaining a suspension of human leucocytes, free from red corpuscles. This step was to be followed by repeated estimation of the opsonin in healthy serum as in the opening work (Table I.), to see to what degree, if any, the accuracy of the opsonic process was improved.

Separation of the White and Red Corpuscles in Human Blood.

The methods tried included the following:—

Hæmolysis of the red corpuscles.—Many chemical and other means were tried, but all abandoned for two reasons: Although the red corpuscles were destroyed the leucocytes were also damaged, and débris of the red corpuscles remained and would have been an obstruction in the opsonic index mixture, besides making bad films.

Sedimentation of citrated blood.—By altering the specific gravity of the suspending fluids some tendency was found for the white corpuscles to fall more slowly than the red corpuscles, and in one such experiment a large number of leucocytes were found adherent to the glass wall of the test-tube. By letting the sedimented red corpuscles out from the base of the tube a fair number of leucocytes was then obtained by washing the tube out; this, however, would not be a practical method, being too slow, and the "catch" too small for the amount of blood shed.

Agglutination of the red corpuscles.—This was done by treating washed citrated corpuscles with ferric chloride, and attempts were made to filter the agglutinated corpuscles by provision of wide-meshed filters calculated to let the white corpuscles through. This method also failed.

Hot and cold tube experiments.—Defibrinated sheep's blood was placed in a large tube, the shape of a clinical thermometer, but having a comparatively large bulb. After centrifugalisation the thin end was placed in an opsonic incubator and the large bulb projected in air. The idea was that the leucocytes would seek the warmer zone and accumulate at the top of the tube; this occurred, and they were secured by cutting off the top of the tube after several hours' incubation, but they were poor specimens, having been some hours in raw serum, and the fluid was bacteria-laden. This method was, therefore, abandoned.

Dr. Ponder's work on leucocytes, however, furnished the basis of a successful method. His valuable observations were published in the Cambridge Philosophical Society's Proceedings. The fundamental fact to which I refer is as follows. If blood is shed into a cell or chamber enclosed between two glass plates and incubated for a few minutes a very large number of leucocytes become attached to the two glass plates. If the cell be opened, the clot removed, and the plates washed in normal saline solution, these leucocytes remain attached to the glass surfaces. Since the number of leucocytes (which are all polynuclears) is very large and illustrated in Fig. 1, this promised a method of obtaining the all-important leucocytes free from red corpuscles, and in the end a sufficient degree of success was attained, but the difficulties were unexpectedly great. The first problem was to detach these corpuscles from the glass surfaces without appreciable damage.

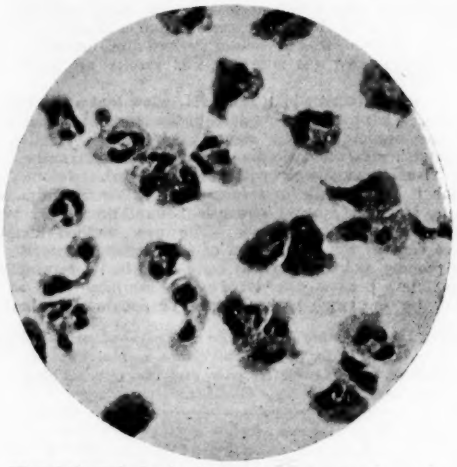
Preliminary Experiments.

By passing an electric current through normal saline solution covering a washed Ponder plate the corpuscles were seen to become free from the glass, but only at one end (the kathode). A control experiment, however, showed this release to be due to the liberation of alkali (sodium). Subsequently sodium dihydrogen phosphate or sodium citrate (1·5 per cent.) in saline 0·8 per cent. solution or hypertonic saline was seen to produce contraction of the ("false") pseudopodia, and released the now spherical and shrunken leucocytes from the plates when incubated for a quarter of an hour.

In most of the experiments which followed these early observations citrate solution was used to release the "catch"

of leucocytes, which were then passed into a tube and concentrated by the centrifuge. If, however, they were then passed, as in the *old* method, from the citrate solution to normal saline, the majority swelled up and burst. By varying the strength of saline and citrate solution a good stained film of leucocytes was obtained, but an attempt to proceed with their use in the *new* index method was arrested by the

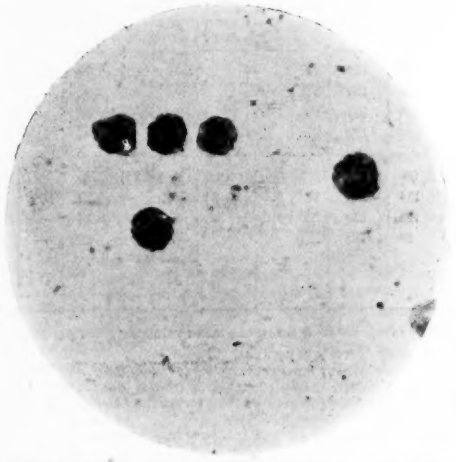
FIG. 1.



Microphotograph showing human leucocytes, free from red corpuscles, visible on a washed plate of a "Ponder" cell. (1/6th objective.)

further revelation that they could not be incubated without bursting in much too high a proportion. By this time the impression arose that these leucocytes, though releasable from the Ponder plate by the above reagents, were in some way altered so as to be osmotically unstable. Remembering that the only obvious difference between them and those obtained by the *old* method was that the former had been in clotting

FIG. 2.



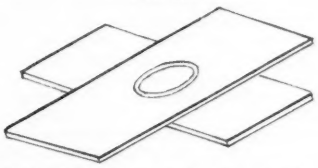
Microphotograph showing human leucocytes in an opsonic film (new method), free from red corpuscles, and ingesting staphylococci. (1/12th objective.)

blood and the latter had not, I tried to re-supply plasma to them. After washing the Ponder plates and soaking in citrated plasma certainly fewer of the leucocytes appeared to be burst, though the experiment could not be repeated and was abandoned. I also tried with a higher degree of success the supply of calcium salts to the leucocytes while incubating in citrate solution, but after experimenting with over 200 Ponder plates I obtained a good enough result by a simpler means, constituting the present method, and although all the polynuclears on the plates do not now survive their treatment up to the final stage of the stained film, yet there is an ample supply of leucocytes which serve the purpose quite well (*vide* Fig. 2).

The Method of Obtaining Polynuclear Leucocytes.

A modified Ponder cell is made of two glass plates enclosing an indiarubber ring. (Fig. 3.) The ring, lying on one plate, is quickly filled with human blood, and the cell closed by the other plate. This cell is placed on the metal shelf of an incubator (37·4° C.) for 20 minutes, after which it is opened, the clot and ring removed, and the plates washed in 1·25 per cent. sodium chloride. While wet (and these plates must never be allowed to dry) the ring margin,

FIG. 3.

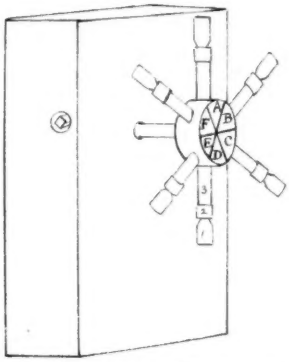


The modified "Ponder" cell. This consists of two glass plates, 1½ × 3 in., sandwiching an indiarubber ring (1 in. diameter). The latter is filled with human blood (1 c.c.).

which is composed of red corpuscles and dried serum, must be wiped away. The plates are now free of red corpuscles, and more sodium chloride 1·25 per cent. is poured on each to more than cover the leucocyte area. The plates are then returned to the metal shelf of the incubator and covered from dust. After 15 minutes' soaking in this solution they are removed, and microscopic inspection of the leucocytes by a low power shows them to be almost spherical and loose from the plate, easily drifting in the fluid.

The next step requires care—viz., the transfer of the leucocytes to a clean small centrifuge tube. I use a long closed opsonic pipette (as a rod) and after first passing most of the fluid into the tube, the rod, by sweeping over the leucocyte area, directs them with the residual fluid into the centrifuge tube. This last step is effected with no force and by several strokes of the rod, and by re-inspection of the

FIG. 4.



The "opsonic mill." This clockwork-driven machine, standing in the incubator, rotates the opsonic mixture and prevents sedimentation of its constituents. It also continues the mixing of bacteria and white corpuscles. 1, The shortened opsonic pipette. 2, An indiarubber collar. 3, A copper tube packed with fine copper wires surrounding the pipette. Speed of rotation = 1½ minutes per revolution. The brake is not illustrated.

plates under the low power assurance is complete that the catch has been secured in the centrifuge tube. The leucocytes are concentrated by the centrifuge at moderate speed. The supernatant fluid is syphoned off to within about half a centimetre of the small white deposit and by shaking the tube an opalescent fluid results, which contains polynuclear leucocytes free from red corpuscles, the whole operation taking about one hour.

Before proceeding with these leucocytes to test the opsonic index, there was still another defect of inequality of "opportunity" in the *old* process which needed remedy. After mixing the serum, bacteria, and corpuscles, the

mixture re-drawn into the pipette was put to incubate for 15 minutes or more in the opsonic incubator of the horizontal type. But by the end of five minutes, and much more so by the end of a quarter of an hour, the mixture in the pipette had a visible red sediment, the supernatant fluid being almost clear. When this sedimentation occurs the leucocytes which fall early are covered by those descending later, whilst others probably never descend within the 15 minutes. Now it is obvious that equality of access to the bacteria cannot continue if the corpuscles are allowed to sediment at all. Fortunately the remedy was simple and took the form shown in Fig. 4.

(A mechanism to prevent sedimentation of the opsonic mixture was devised by Rosenow in 1906, and by Glynn and Cox in 1912. The latter used a mechanism which rotated the pipette on its long axis in a horizontal plane, and their experiments showed no reduction of the error by its use when tested. Only a small benefit is to be expected from such an improvement, but it is probably inappreciable when the entire experimental error may be large, as in the old method. Moreover, their method of rotation is not ideal, for though sedimentation is prevented there is no active mixing (from end to end of the pipette) induced by such a roller movement.)

The opsonic mixture is drawn into a shortened pipette and placed in a tube in the opsonic "mill," which moving slowly prevents any sedimentation, and also effects a fair degree of actual mixing of the ingredients during incubation. The mill tubes are packed with fine copper wires and constitute a warm "glove" for the pipette and its contents; the absence of any sedimentation and the degree of active mixing are easily demonstrable by experiment. The only other alteration is to make the bacterial emulsion in 1·25 per cent. salt, instead of normal saline, solution. I now proceeded to estimate repeatedly the opsonin of a normal serum, using equal volumes of serum, of a bacterial suspension of staphylococci, and of the leucocytes; and the striking improvement in results is shown in Table II.

TABLE II.—*Opsonic Index (New Method).—Repeated Estimation of the Opsonin to Staphylococcus Aureus in Normal Serum, using Leucocytes only and the Opsonic "Mill." The Series Number indicates a Set of Four or Six Observations made at a Sitting with the same Set of Materials.*

Series.	Opsonic count. 50 leucocytes.	Error % *above* average.	Error % *below* average.	Mean value.	Blanks.	Worst error *above* average.	Worst error *below* average.
1 Very thin bacterial emulsion.	61	—	16	72	27	—	16%
	72	—	—		17	—	—
	76 (7/1)	5	—		21	—	—
	79	9	—		19	—	—
	67	—	6		20	—	—
	84	15	—		14	15%	—
2 Thin bacterial emulsion.	117	13	—	103	13	13%	—
	103	—	—		13	—	—
	114 (12/2)	11	—		12	—	—
	87	—	15		11	—	15%
	91	—	11		10	—	—
	108	4	—		18	—	—
3 Medium bacterial emulsion.	130	—	6	139	6	—	6%
	147 (10/1)	5	—		9	5%	—
	135	—	2		11	—	—
	144	3	—		8	—	—
4 Thick bacterial emulsion.	160	—	10	178	4	—	10%
	195 (14/1)	9	—		3	—	—
	197	10	—		6	—	—
	163	—	8		7	10%	—
		84	74				

Average error above or below the mean = 158/20 = 7·9 per cent.

Worst error *above* the mean value = 15 per cent.

Worst error *below* the mean value = 16 per cent.

Reviewing the results in Table II., there is a marked improvement both upon the average and the maximum deviation from the mean value. This had been effected in spite of the variation in strength of the bacterial emulsion used.

The emulsion used in Experiment 3 was fixed by heat and retained as a standard which would give an average phagocytosis of 3 micrococci per leucocyte. Believing that still better results might be obtained from the improvement used, I decided to make a further test of four serial observations and also to count 100 leucocytes in each estimation, though 50 were to be counted in each of the two films into which the opsonic mixture was spread. The results are shown in Table III.

The results recorded in Table III. show that a still higher degree of accuracy was obtained in the repeated estimations of the opsonin in the serum used, though I failed to "match" with the desired accuracy the bacterial suspension by visual comparison with the standard. In fact, I think it worth while in future to count the first film and be satisfied as to its strength before proceeding with any successive estimations. The new method involves more care in the preparation of the essential materials of the process, and also requires more time in its accomplishment, but I have considered such sacrifice well worth while for the much higher degree of accuracy obtainable.

TABLE III.—*Opsonic Index (New Method).—Repeated Estimation of Opsonin in Normal Serum to the Staphylococcus Aureus, using Leucocytes only and the Opsonic Mill, and Counting 100 Leucocyte Contents.*

Series.	50 leucocytes, Film I.	50 leucocytes, Film II.	Opsonic count.	Mean value.	Error from mean value +	Error from mean value −	Blanks.	Maximum deviation +	Maximum deviation −
1	144	105	249	256	—	2%	18	—	2%
	127	144	271 (10/2)		6%	—	18	6%	—
	107	146	253		—	1%	16	—	—
	131	119	250		—	2%	20	—	—
2	142	178	320	324	—	1%	10	—	—
	170	159	329 (14/1)		1%	—	15	—	—
	150	160	310		—	3%	16	—	3%
	176	162	338		4%	—	8	4%	—
3	127	120	247	252	—	2%	49	—	—
	128	103	231 (14/1)		—	8%	40	—	8%
	144	113	257		2%	—	32	—	—
	144	132	276		9%	—	40	9%	—
4	99	112	211	230	—	8%	25	—	8%
	114	144	258 (9/4)		12%	—	19	12%	—
	121	109	230		—	—	23	—	—
	96	125	221		—	3%	25	—	—
					34	30			

Average error above or below the mean value = 64/16 = 4 per cent.

Worst error *above* = 12 per cent.

Worst error *below* = 8 per cent.

There was defective emulsification of the staphylococci in Series 3, evident in the "clumpy" films, but fortunately the entire results of the table can sustain this handicap.

All the films of Tables II. and III. have been preserved.

In spite of this drawback, the new features are not difficult of acquisition, the only one perhaps requiring extra care being the preparation of the films. If these are good the facility of counting is remarkable, but if they are not the work may have to be done again. Any laboratory worker, however, can acquire the necessary technique after a little practice, and though the red corpuscles formerly gave a "body" to the fluid spread, one finds in the *new* method that the leucocytes are still obtainable in a ridge of aggregated polynuclears. I have usually stained the films with 1 part Jenner's stain, diluted with 2 parts of methyl alcohol for three minutes. With regard to the counting, the only rule

I have followed is: If in doubt, "don't"—i.e., don't count a leucocyte content unless sure of the number of contained bacteria. There is a considerable excess of leucocytes in each film and, of course, the cells are enumerated just as one meets them.

I think we shall all look forward to the measurement of the opsonins in health and in diseased states, and possibly build a new opsonic philosophy, but I hope that everyone intending to measure opsonin will test this process (or a better one) against itself repeatedly and assure himself of the purely experimental error at the outset. It is manifest that only after such assurance may we draw inferences as to differences of opsonin content in pathological cases.

Summary.

The improvements described have produced:—

1. A striking reduction in the liability to error of opsonic estimations when repeatedly tested upon the same materials.

2. The results recorded by the *new* method (Table III.) showed a liability to error of about one-quarter the magnitude of those recorded in Table I. (*old* method), the conditions of experiment being almost comparable.

3. The enhanced accuracy is associated with a much reduced range of microbic content of the leucocytes (0–14).

4. The improved results are attributed to the more even distribution of bacteria amongst the leucocytes (by the removal of the red corpuscles) and to its maintenance during incubation in the opsonic mill.

5. No observations were made of any variations in opsonin in health or pathological states.

Conclusion.

The opsonic index was a fine conception, and though its welcome and trial by the profession were presently followed by doubt and disappointment, it must be remembered that the valuable things of the earth are seldom first found in the pure state. The refining process was inevitable, and I feel that the degree of improvement of the process (considered as an instrument) disclosed in this work will be followed by still further refinements. Nevertheless, at this stage I express my special indebtedness to the work of Mr. Major Greenwood, jun., and Dr. J. White, for without the sign-post their labours produced I doubt whether I should have pursued the subject beyond the work recorded in Table I.

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New Cavendish-street, W.

A CASE OF GENERAL INFECTION BY THE INFLUENZA BACILLUS.

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THE following case presents several points of interest.

There had been a purulent discharge from the left ear at times for some years. The onset of fever was gradual, so that the precise day of onset could not be fixed, but it occurred between two and three weeks after an operation for removal of enlarged tonsils. After admission to the hospital the ear discharge yielded a pure culture of Pfeiffer's influenza bacillus. Cultures from the blood taken towards the end of the second week of the fever, and after the occurrence of two rigors, also gave a pure culture of the same bacillus. The inference would seem to be that the bacillus was present in the ear discharge, and obtained entrance to the blood through the open wounds left by removal of the tonsils, and produced an acute septicæmia. This appears to be a striking example of the tonsillar route for a general infection. The resulting septicæmia was of gradual onset, and was a very severe one. For two or three weeks the prospect of recovery appeared dubious.

If the foregoing view is correct, the case would appear to show the course of a direct infection of the blood by the influenza bacillus through a lesion in a mucous membrane. The fever was irregular throughout, and the course of the illness was five weeks. It is true that injections of an autogenous vaccine were given in the third week, and that during, and for three days subsequently to, their administration the fever became higher than it had been during the previous week and showed more extensive daily variations. From the course of the fever alone, however, it is difficult to say whether the vaccines had any effect on the disease, and no certain effects could be traced from them on the local or general symptoms, with this exception, that the aural discharge rather suddenly ceased and did not recur. On the whole, though I admit that there is no certain evidence as to the positive or negative effect of the vaccines, I am inclined to think that the organism spontaneously died out and the disease came to an end. The termination of the illness, although there was nothing in the nature of a crisis, was rather an abrupt one; when once the temperature came to normal there was no recrudescence of fever, and the recovery, considering the very severe illness that had been passed through, was fairly quick.

A further point of interest was the intervention of a cardiac murmur during the course of the illness. The presence of this murmur, in conjunction with the severity of the general symptoms, gave the illness a close resemblance to malignant or ulcerative endocarditis, and this I think would have been the diagnosis made by anyone who had seen the patient at the height of the disease. Some days before the advent of the murmur, an apical or mitral regurgitant one, soft in character, there was accentuation of the pulmonary second sound. The starting of the murmur coincided with signs of a moderate dilatation of the left ventricle; it subsequently disappeared, but a slight enlargement of the cardiac dulness remained. I think, therefore, that the murmur was not due to endocarditis, but to dilatation of the mitral valve due to a toxic myocarditis, and consequent relaxation of the mitral sphincter and of the wall of the left ventricle. The following are the details of the case.

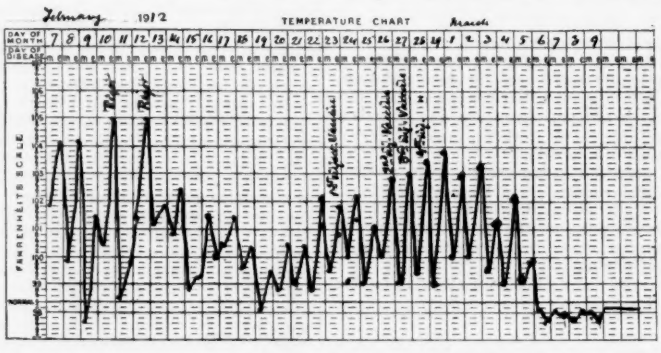
The patient was a girl, aged 13 years. She had had diphtheria and scarlet fever when five years old, and measles and whooping-cough before that, but no other severe illness, and in particular had never suffered from acute or chronic rheumatism. She had had a discharge from the left ear at times for some years; it was not constantly present. She had also suffered from enlarged tonsils for some time. For about three months before admission she had complained of pains in the chest, and for two or three weeks of pains in the left hip-, knee-, and ankle-joints. About three weeks before admission the tonsils were removed; the discharge from the ear increased directly after the operation, and a few days before admission the patient became feverish and felt ill.

The patient was admitted to the Bristol General Hospital on Feb. 7th, with a temperature of 104° F., and with swelling of the left ankle, which was not red, but very painful, the soft tissues around being œdematous, much more so than is seen in acute rheumatism. This swelling and œdema of the soft parts in the neighbourhood of the joints gave a marked distinction from the ordinary appearance of a rheumatic joint. There was an offensive discharge from the left ear. The child looked very ill; her face was flushed and she had profuse sweats. The bowels were obstinately constipated and the tongue was furred. Pulse-rate, 116; respirations, 26. The lungs were normal. Heart: There was wavy pulsation over the second, third, fourth, and fifth spaces; the apex beat was in the nipple line; the area of cardiac dulness began at the third cartilage above, and transversely from the right border of the sternum to the apex beat. There were no cardiac murmurs, but marked accentuation of the pulmonary second sound. The abdomen was normal; the edge of the liver came, however, 1½ inches below the costal margin; the spleen was not felt. The urine contained a faint trace of albumin, but no sugar; it was of specific gravity 1016; it was clear. The reflexes and the nervous system generally were normal.

During the first week of the illness the temperature was of a "swinging type"; there were severe rigors on Feb. 10th and 11th, when it reached 105°. There were profuse sweats and a scanty excretion of urine. The spleen was enlarged slightly and its tip could be felt. The lungs remained unaffected. The cardiac dulness was slightly increased transversely, and towards the end of this week a soft systolic murmur was heard at the apex. The condition of the left ankle became worse, there were now much swelling and redness about the joint and surrounding tissues, but there

was no evidence of pus in or about the joint; the right ankle became painful and very slightly reddened and swollen. Nothing was made out in the left hip-joint, in which also the patient complained of pain. There was during the day little pain unless the joints were handled or moved, when it was very acute. The patient often screamed out with pain in the night. Pulse-rate variable, 108–128; respirations 24–26; tongue furred; obstinate constipation.

The treatment was by salicylates, which, however, had little effect, either on the fever or on the joint symptoms. After the second rigor, a bacteriological examination of the blood and of the ear discharge was made, and pure cultures of Pfeiffer's bacillus were obtained from both.



During the second week the temperature took a lower range, being at or below 102°; the pulse-rate was slower, the joints were less painful, and there was a very gradual lessening of the swelling and inflammation of the left ankle. The abdomen became a little distended, and the tip of the spleen was plainly felt. The soft systolic murmur at the cardiac apex was sometimes audible, sometimes not. There were no hæmorrhages. The ear discharge was less and not offensive; there was no rash on the skin. Though there seemed a slight improvement the patient's condition was still very unsatisfactory. By Feb. 23rd an autogenous vaccine had been prepared, and the first injection (5,000,000) was given. This had no apparent effect, and on the 26th and 27th doses of 10,000,000 and 15,000,000 respectively were injected.

During the third week the temperature ranged somewhat higher, with great oscillations. The general condition remained much the same; the joint pains were not so severe, but the left ankle was still a little swollen and red. The blood count showed red cells 6,000,000, hæmoglobin 80·1 per cent., and a slight leucocytosis. A differential count showed polymorphonuclears 77·2, transitionals 1·6, small leucocytes 9·8, large lymphocytes 10·2, and eosinophiles 0·2 per cent. There was a very large number of blood platelets. The patient complained of pains and of frequency and difficulty of micturition, and the urine became offensive and turbid. A bacteriological examination showed the presence of bacillus coli, and she was put on urotropine.

At the beginning of the fourth week (Feb. 28th) a fourth injection of vaccine (40,000,000) was given. During the following five days the temperature took a higher range, reaching to nearly 104°, with wider oscillations than in the previous two weeks, and the pulse was in correspondence quicker. As the vaccines had produced no certain effect, it was thought advisable, after having given these three doses on successive days, to wait before giving any more. Whether the high temperature in this week was the result of the vaccines it is difficult to say. At the same time the joint symptoms steadily improved and also the ear discharge. The general condition of the patient was one of great weakness, with a feeble pulse. The first sound of the heart was hardly audible at the apex, and there was a faint, soft, systolic murmur over a limited area just internal to the apex. The pulmonary second sound was sharply accentuated; this murmur was not heard again after March 3rd. The cheeks were very flushed throughout. The condition of the urine gradually improved and the amount passed was increased; aromatic bodies were not in excess. On Feb. 25th the patient coughed up a little blood-stained sputum, but there were never any physical signs of lung mischief. After Feb. 28th there was no discharge from the ear.

During the second, third, and part of the fourth weeks of her illness the patient was extremely ill and recovery seemed very unlikely. At the end of the fourth week, on March 4th and 5th, the temperature rather suddenly fell to normal within two days, and subsequently remained normal.

During the fifth week the patient steadily improved; the pulse-rate fell, the pains in the joints subsided, and the redness and swelling of the ankle-joint, which had been slowly improving for two weeks, cleared up. The ear discharge ceased. The spleen could no longer be felt, and the edge of the liver, which at first was 2½ inches below the ribs, was only just palpable. No cardiac murmur could be heard. The apex beat was now in the fourth intercostal space, just external to the nipple line, where it remained, but this, and the pulmonary second sound, which was still accentuated, were the only signs of any departure from normal of the heart. The patient gained 2½ lb. in weight during this week. A blood culture taken on March 7th was negative.

After such a severe illness convalescence was naturally somewhat slow, but it progressed steadily and was uninterrupted, and the patient was discharged to the convalescent home in very fair health on April 9th. The ankle-joint was stiff and painful for some time, but eventually it cleared up.

The bacteriological investigations were carried out by Mr. G. Scott-Williamson, pathologist to the hospital, to whom I here express my best thanks.

Bristol.

THE OPERATIVE TREATMENT OF CONCOMITANT STRABISMUS.

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ADMITTING that for success in correcting strabismus by operation experience is all essential, it is yet necessary to be acquainted with the principles upon which our procedures are founded. In regard to the lateral rotators the "muscular insertion" may be defined as the distal end of the fleshy belly of the muscle, the "tendon insertion" as the anterior extremity of its tendon of insertion whether natural or produced by resection of a portion, and the "potential insertion" as the point of the sclerotic touched by a tangential line drawn from the origin of the muscle. For a given cross-section the traction of one of these muscles varies, first, as the strength of the innervation to its contraction, and second, as the degree of its elastic tension.

It is obvious that by operative measures we cannot directly influence the former; hence we need only concern ourselves with the behaviour of the muscles as elastic bands. The degree of their elastic tension varies directly as the distance between their origin and muscular insertion; hence it follows from Hook's law, "ut tensio sic vis," that, the innervation remaining the same, the traction is equally increased by the artificial rotation of the globe in the opposite direction to that of the action of the muscle and by the advancement of its muscular insertion over an equal number of degrees.

Increase of traction may thus be obtained by the advancement of the original tendon insertion which may be carried up to 1 mm. from the corneal margin—i.e., simple advancement, and still more by resecting a portion of its tendon and advancing its new tendon insertion over a greater distance which may extend up to the above point. The linear amount of advancement of the tendon insertion, original or new, is related to the number of degrees of the surface of the globe

over which it is carried as follows: Taking 23 mm. as the diameter of the scleral globe, its circumference = 23 × 3·1416 = 72 mm., and hence 1 mm. of this corresponds to 360° ÷ 72 = 5°. From this it is universally laid down that for every millimetre of advancement we obtain 5° of rotation of the globe; but, as will be shown, this is erroneous, being double the amount obtainable, which accounts for so many failures as to have brought about abandonment of the operation on a theoretical basis.

The amount of advancement required to produce a given rotation of the globe is found as follows (taking the case of convergent strabismus induced by hypermetropia as illustrative): The traction of the internal recti caused by the innervation to over-convergence is productive of increased traction on the part of the external recti caused, as above explained, by the advancement of their muscular insertions; hence the convergence increases until equilibrium is established between the tractions of the two opponent muscles, and after a time the degree at which this is attained remains constant as the permanent element of the strabismus. If, then, in this case T represents the traction of the internal rectus, it must also represent that of the external rectus, and if t represents the increment or diminution given to T by each degree of advancement or retirement of the tendon insertion of either muscle, it is obvious that if we advance that of the external rectus over $n°$ its traction becomes $T + n\,t$, and that as for every degree the globe is rotated outwards the traction of the internal rectus is raised from T by t, while that of the external rectus falls from $T + n\,t$, also by t, it follows that equilibrium will be established when the traction of each muscle has arrived at $T + \frac{n}{2}\,t$—i.e., when the globe has rotated through half the number of degrees of the advancement. Thus, to obtain a rotation of $n°$ we must advance the tendon insertion over $2n°$ or $\frac{2}{3}n$ mm., and conversely an advancement of n mm. will effect a rotation of $\frac{3}{2}n°$—i.e., for every millimetre of advancement we only obtain 2·5° of rotation of the globe.

On account, however, of the yielding of the new tendon union, advancement, even on this basis, is generally found to be insufficient; hence a slight over-correction of the deviation at the time of the operation should be aimed at, and this in cases under chloroform, which normally brings about a divergence, necessitates our giving the eyes a degree of divergence which the inexperienced would naturally consider excessive.

As the tendon insertion of the internal rectus is 5 mm. and that of the external rectus 7 mm. from the corneal margin, 4 and 6 mm. may be taken as the extent to which we can advance their muscular insertions without resection; hence the maximum rotation we can thereby obtain is 10° and 15° respectively. As the length of the tendon of the internal rectus is 3 mm. and that of the external rectus 7 mm., and as for the sutures to hold they must grip the tendon fibres, the maximum rotation we can obtain by resection with attachment of the new tendon insertion to its old site is for the former 5° and for the latter 15°, while from advancement to the edge of the cornea combined with resection the maximum rotation we can obtain is for the former 15° and for the latter 30°.

Tenotomy obviously acts in the opposite sense to advancement, the traction of the muscle being lessened by approximation of its muscular insertion to its origin—i.e., its relaxation; and as from 5° to 15° are obtainable by tenotomy, this corresponds to a retirement of the tendon insertion over 2 mm. to 6 mm. A serious objection to tenotomy rises from the fact that when effective it is followed by limitation in the rotation of the globe in the direction of the action of the muscle, whereby concomitancy is lost and diplopia results for an object carried sufficiently far in this direction. The cause of this is not at first apparent, as it might be thought that if the muscle was over-powerful before the tenotomy, it ought, in the event of correction having been obtained, to exercise the normal effect on the globe after it, but the explanation lies in the fact that the new tendon insertion after a slight contraction of the muscle passes behind its potential insertion so that power is thereby lost.

Now as both the internal recti acquire increased traction from the hypertonicity induced in them by the exalted innervation to convergence, the rational treatment lies in conferring on both the external recti a correspondingly increased traction by advancement; hence, in strabismus of any considerable degree, we are in favour of advancing the external rectus of one eye to the extent sufficient to correct half the degree, and, preferably after four or six weeks, advancing that of the other to the extent requisite to obtain a slight primary over-correction. In this way we secure retention of concomitancy, and if the permanent element be estimated and corrected when the case is fully atropinised, and the correcting glasses are worn as soon as possible, we need fear neither a return of the strabismus nor a subsequent divergence.

It is only in cases of a degree beyond the power of a double advancement to correct that tenotomy should be resorted to, and if it is decided upon, as its effects are so variable, it should be done first, and after four or six weeks its action supplemented by the necessary advancement. Naturally it should be done on the less serviceable eye and will rarely be required on both.

As to the method of advancement, there are countless variations in detail; but the following may be relied on as securing the important advantages of simplicity, preservation of conjunctiva and capsule of Tenon, firmness of apposition of the tendon to the sclera, and easy removal of the stitch. The conjunctiva and capsule of Tenon are divided by scissors down to the sclera vertically over 1 cm. just outside the cornea; the flap of conjunctiva and capsule is raised from the sclera and tendon by the closed scissors blades; the tendon is secured close to its insertion by forceps, and its insertion and other attachments to the sclera severed by the scissors. A short, nearly straight, needle, threaded with extra stout silk, is passed from without inwards through the tendon, at the point determined by the effect desired, just within its lower border, first including the hem of the flap. It is then entered in the sclera vertically just outside the cornea, 2 mm. below its horizontal diameter, to emerge 2 mm. above this line, and then carried from within outwards through the tendon, just within its upper border at the level of its first transit, afterwards again taking in the hem of the flap. The ends of the thread are then tightened in a running knot until the tendon is firmly strapped down to the subjacent sclera, when they are firmly knotted; and lastly, the tendon in front of the knot is removed by scissors.

It is a great advantage to do the operation under a local anæsthetic, as in such circumstances the amount of the advancement can be gauged correctly.

The authors, with an experience of over 200 cases, strongly confirm the teaching of Landolt, and always endeavour to secure a primary over-correction in internal strabismus—a matter of the utmost importance in the case of adults. If after having advanced the muscle a primary over-correction has not been attained, the ligature must be removed at once and the tendon either brought closer to the corneal margin or an additional portion of it excised.

TWO CASES OF MERCURIAL POISONING.

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THE following two cases, presenting features of interest from many points of view, may perhaps be advantageously laid before readers of THE LANCET.

CASE 1.—A middle-aged woman had been taking syrup of hydriodic acid by order of her medical attendant. She usually purchased it undiluted and took one teaspoonful in water directly after meals. On the day of the accident she had bought a new bottle of her medicine at the shop of a druggist, and after the evening meal, consisting of a meat tea, she took the usual diluted dose immediately before starting for the theatre. She noticed at once a sour taste in the mouth and recognised that there was something wrong. However, the cab was waiting, and she started off. Immediately afterwards she began to vomit violently and to suffer great pain. The cab was stopped and she was taken into a friend's house, and a medical man was sent for. The pain and vomiting continued, she could retain nothing, was collapsed, and could not sleep. Next day severe diarrhœa set in with blood and mucus. The pain was less. There was still vomiting, but no dysphagia. The pulse was fairly good. I saw the patient on the following day. The vomiting and

bloody stools still continued frequently. The pulse-rate was 110, and there was restlessness, with no sleep. The patient did not, however, appear to be very seriously ill. It had been ascertained that the druggist had by mistake sent her a bottle of acid nitrate of mercury instead of syrup of hydriodic acid, of which she had taken one teaspoonful. Her condition remained much the same for the next few days. She vomited each day to a certain extent with blood on one occasion. The bloody diarrhœa continued. There was very little pain and no distension of the abdomen. On the eighth day, when the patient seemed to be steadily improving, she suddenly became collapsed and died.

At the necropsy made 48 hours after death the following conditions were found. The lungs were œdematous at the bases; the heart was normal; the peritoneum contained about half a pint of blood-stained fluid; and the stomach was normal, with slight ecchymoses about the duodenum close to the pylorus. There was no other abnormality in the small intestine or in the cæcum. Acute inflammation began at the hepatic flexure of the colon, and continued irregularly to the anus, being most intense in the lower segment of the sigmoid and in the rectum. Scattered over the mucosa were dark, shaggy, swollen patches, with general thickening. In the rectum and sigmoid the thickening was almost universal. Ulcerations presented here and there. The liver weighed 46 oz., and was soft. The abdominal lymphatic glands were enlarged. Both kidneys were somewhat granular, the left showing also acute inflammatory changes.

CASE 2.—The second case was that of a married woman, the mother of two healthy children, whose previous health had been quite good. Ten days after a perfectly normal confinement the lochial discharge was noticed to be slightly offensive, and the nurse was given some tablets of corrosive sublimate to use as a vaginal douche in the usual strength—one tablet to the pint of water. These were repeated the next day, and on the following day the medical man himself gave a uterine douche of the same. On the next day the patient complained of some slight soreness of the gums, chiefly on the left side, but it was thought to be toothache, and there was no sensible salivation. Next day acute diarrhœa set in with slimy motions: this was followed by a rigor, and another intra-uterine douche of perchloride was given. This was followed by more diarrhœa, consisting chiefly of blood and mucus. A gynæcologist was called in, who found no evidence of uterine disease, and diagnosed mercurial intoxication. At 3 A.M. on the following day the patient was unable to pass urine, and on catheterisation none was found. She was admitted into hospital under my care later on the same day. On admission she appeared to be somewhat flushed in the face, but quite bright and clear mentally. The breasts were distended. There was no evidence of anything abnormal in the thoracic or abdominal viscera, except that the spleen could be felt just below the costal edge, and there was definite tenderness over the sigmoid. The gums were slightly congested at the edges, but not tender, and there was no increased salivation. The tongue was dry in the centre, not coated. Pulse 108, full volume, normal tension, regular; temperature 98·6° F. Diagnosis: Corrosive sublimate poisoning; anuria; acute colitis. Vigorous treatment in the form of hot-air baths, dry cupping to the loins, hot saline rectal irrigations, &c., was directed towards promoting free action of the skin, and if possible of the kidneys; but for the next three days no urine at all was excreted. The remainder of the history may be briefly condensed as follows. The bloody stools continued until the third day in hospital, after which there were fairly frequent loose motions containing occult blood but no visible melæna. Vomiting recurred from time to time, getting more severe towards the end. The skin acted very freely after hot-air baths, hot packs, and so on, and she always felt much better after them, although they caused considerable exhaustion. Naturally, however, the greatest anxiety was caused by the anuria. The suppression of urine was complete for three days, when about 1 drachm of fluid was drawn off by catheter; this was almost solid with albumin and contained no blood. On the fourth day about 5 c.c. were obtained similar to that of the day before, but containing also pus; no casts. On the fifth day 29 c.c. of urine were passed, partly voluntarily. Sixth day: 3 c.c. per catheter. Seventh day: 64 c.c., partly voluntarily. Eighth day: 260 c.c., partly voluntarily; no diacetic acid reaction. Ninth day: 340 c.c., partly voluntarily; specific gravity, 1010; urea, ½ per cent.; albumin 2 per cent. Tenth day: 475 c.c., partly voluntarily. The temperature was usually raised to about 100° F. at intervals in the day and night, the pulse varying from 100 to 110. On the fifth day after suppression she began to dream a good deal in her sleep and woke up confused as to time and place. On the sixth day she was somewhat exhausted and there was occasional faintness. About this time the breathing became altered, with long deep sighing inspirations at intervals; rate 12 to 20. On the eighth day the patient seemed worse in several ways. The tongue was very dry, the pupils were small, there was some tremor of the hands, the breathing was deeper and more irregular, and there was slight confusion. Otherwise the mental condition was quite good. In the evening pilocarpine was given hypodermically; this was followed by profuse sweating but with unpleasant symptoms of unconsciousness. On the ninth day there were continual drowsiness and difficulty in swallowing, and the patient passed her motions under her. The breathing was deep and slow, with long intervals between. On the tenth day after suppression began the patient was comatose, coarse tracheal râles were heard, and death supervened.

At the necropsy the following conditions were found. A patch of pneumonia presented in the upper lobe of the right lung in front, with general œdema and hypostatic congestion of both lungs. The liver was fatty, the spleen enlarged and soft, and the heart dilated and flabby, while in the stomach and small intestine nothing abnormal was observed. The large intestine was acutely inflamed with small ulcers chiefly about the lower part of the cæcum and at the lower end of the sigmoid and rectum. Both kidneys were enlarged, congested, necrotic, and soft; on section, the outline of the parts was much less evident than normally. The uterus was slightly enlarged and flabby, and there was thrombosis of the left ovarian vein. Sections of the organs presented the following appearances: Typical pneumonia, red hepatisation stage; hyaline degeneration in the spleen; fatty and necrosed liver; in the left kidney marked interstitial changes; and in both kidneys parenchymatous changes, with necrosis and marked calcareous deposits in the tubular epithelium of the cortex.

These two cases represent types of subacute poisoning by two different salts of the drug. In the first case the drug was taken by the mouth in a single dose, and in a particularly irritating form, and it is somewhat surprising that more symptoms of irritant poisoning should not have been observed. This may be explained by the fact that the drug was taken on a full stomach and that it was got rid of rapidly by copious vomiting. That being so, one would have expected that further prolonged symptoms of mercury intoxication would have been absent, or at least that the quantity of mercury available for intoxication would have been comparatively small. However, it was sufficient to cause a fatal result at the end of a week. Deaths from this drug are not common. Taylor refers to such a thing having occurred, but adds that probably the nitric acid played a larger part than the mercury. That opinion is not supported by my first case, in which the condition of the colon and the duration of life were typical of mercurial intoxication rather than of nitric acid poisoning.

The second case illustrates first the extreme ease with which mercurial salts are absorbed by mucous surfaces. It is probable that this patient did not have more than about six or eight injections made with tablets of perchloride, and most of these were vaginal douches only. Owing, however, to the position of the involuting uterus, which was anteflexed at the fundus, it is quite probable that the two intra-uterine douches given when the symptoms first appeared left a little pool of mercurial lotion in the fundus from which further absorption took place.

The absence of salivation and the very slight tenderness of the gums even with doses sufficient to produce fatal results are noteworthy.

As regards the anuria, it was absolute for four days, practically so for another four days, and just as the kidneys appeared to be acting again symptoms of poisoning set in. The appearance and condition of the patient suggested those of acidosis in diabetes, and not at all those of uræmia. No diacetic acid was found in the urine.

The calcareous changes in the kidney tubules were characteristic of poisoning by corrosive sublimate, although not pathognomonic, as they have been observed in cases of

poisoning by phosphorus, bismuth, glycerine, and other drugs. Possibly they are due to retention of calcium salts brought to the kidney for excretion, and consequent deposition in the excreting epithelium. A prolonged milk diet in this case would tend to increase such salts in the circulation.

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ACUTE FOCAL ENCEPHALITIS.

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THE following two cases are of interest, especially when they are considered side by side:—

CASE 1.—The patient, a man, aged 64, whom I saw in association with Mr. H. C. Alderman, of Halifax, gave the following history. He had suffered from several attacks of influenza during the course of the past ten years. These attacks were generally severe, keeping him in bed from a week to a fortnight. With the exception of these and an attack of typhoid fever ten years ago his health had always been good. There was no history of syphilis.

On Friday, April 3rd, 1907, he came from business complaining of pain in the back, intense frontal headache, and shivering. He went to bed, and his temperature in the evening was found to be 105° F. The temperature was reduced a little and the pains were somewhat relieved after the administration of 10 grains of phenacetin. On the next day the temperature was 102° and the backache was not so severe. There was some abdominal pain, with slight diarrhœa and a little vomiting, accompanied by nausea. These symptoms disappeared on the following day, but the temperature remained at 100° to 101°. The headache had practically disappeared. On Monday, four days after the onset, the temperature rose to 103°, with a return of the intense frontal headache. The headache became worse in spite of treatment, and on Tuesday was associated with frequent vomiting and retching.

I saw the patient on Wednesday evening, and by that time there was distinct drowsiness with slight delirium. During the day he had found that he was unable to close the right eye properly. Examination showed that there was a complete paralysis of the third nerve on the right side, as evidenced by a dilated and immobile pupil, ptosis, and ocular paralysis. The ophthalmoscope showed an apparently healthy disc. There was no involvement of any other cranial nerve nor any other nervous manifestation. A tentative diagnosis of focal encephalitis was made and a hopeful prognosis given.

On the following day the temperature began to fall, and the headache and vomiting passed off within the next 12 hours. Four days later, although the third nerve paralysis was still present, the temperature was normal, the headache, delirium and vomiting had disappeared, and it looked as though the acute process were at an end. On the next day, however, the temperature again began to rise, with a return of the frontal headache. Vision became a little blurred, and in a few days this went on to absolute blindness, the patient being unable to detect an electric light held close to the eyes. Examination of the fundus of the eyes revealed pallor of the discs, but no optic neuritis. The temperature, after rising to 103°, gradually fell during the next few days to normal, and did not rise again. The headache also finally disappeared. The blindness remained absolute for ten days, and vision then slowly returned. A week after the onset of the blindness the eyes were again examined, and a well-marked optic neuritis, more marked in the left eye, was found to exist.

Improvement slowly occurred. A fortnight later the patient was able to read with difficulty. Marked diplopia still existed on account of the persisting third nerve paralysis. I saw the patient two months after the onset, and there was complete recovery of vision. The paralysis of the third nerve had disappeared, and there was no evidence of optic neuritis. During convalescence treatment consisted in the administration of potassium iodide in 5-grain doses, combined with nux vomica.

CASE 2.—The patient was a man aged 40 years. Here there was a history of pneumonia seven years previously. Ever since this illness the patient had suffered from a slight irritating cough, and examination revealed signs of what was considered to be some degree of fibrosis of the base of the left lung. There was no previous history of influenza and no history of syphilis.

On March 24th, 1911, the patient began to feel indisposed, with slight headache and shivering. This he attributed to a chill sustained whilst motoring in wild weather some few days previously. The cough, which had hitherto only troubled him slightly, became worse and was attended with a fair amount of sputum. He went to bed, and I saw him on March 27th. Beyond the temperature, which varied from 100° to 103° F., and some signs of bronchitis at the left base, there was nothing to be made out. The urine was normal. On the 28th the evening temperature was 105°, but the condition of the patient generally was not materially worse. After this the fever gradually abated, and on April 1st and 2nd the temperature was normal.

On April 3rd he went out for a few hours in the middle of the day and, apart from some weakness, felt perfectly well. In the evening, however, he was suddenly seized with intense distracting frontal headache, and the temperature went up to 102°. This head pain kept him awake all night. Next morning he complained that his face and tongue felt "numbed" and that he could see double. When I saw him a few hours later there was no anæsthesia of the face or tongue to be made out, but there was evident a slight internal strabismus of the left eye, apparently due to some weakness of the left internal rectus muscle. It was then decided to transfer the patient to a nursing home, and this was done on the following morning.

On admission to the home the temperature was 99·2°, pulse 96 per minute, full but irregular, and respirations 34. During the night previous there had been a good deal of vomiting, and this continued after admission. The headache was intense, and this was aggravated by a constant troublesome cough. There was no drowsiness or delirium. The breath of the patient was noticeably sweet, and examination of the urine revealed the presence of a large amount of diacetic acid. On this account, and as all food and drink were rejected by the stomach, nothing was given to the patient except water containing bicarbonate of sodium in the proportion of 3i. to 3x. This eventually checked the vomiting, and under the repeated administration of bicarbonate of sodium in water and milk the urine became normal in four or five days. The headache was a little relieved temporarily by salicylate of sodium and antipyrin.

On the following morning the headache was still severe, but less so than on the previous day. The temperature was 100°. The diplopia was if anything more marked, and in addition there was some blurring of vision. Examination of the fundus revealed nothing abnormal. Some little difficulty in articulation was noticed, but this could be overcome by effort.

Next morning there was very little change in the patient's condition, but as the day advanced the difficulty in speech became more evident. Twelve hours later he was unable to speak at all. The tongue could be protruded as far as the lips, but no further. There was also difficulty in swallowing, and this rapidly became worse. In the evening of April 8th the patient was unable to swallow anything, and saliva constantly dribbled away from a hanging and almost immobile lower lip. The tongue now could not be protruded at all. Vision was almost entirely lost, the patient being only just able to distinguish forms passing between him and the light. Consciousness was practically unimpaired, conversation being apparently well heard and understood. The temperature was now 102°, pulse rate 110, and the case looked almost hopeless.

The condition was judged to be probably one of post-influenzal encephalitis, and it was decided to try the effect of an influenza vaccine. An injection of 10 millions was therefore given the same evening. Next morning the temperature had fallen to 98°, reaching the normal for the first time since admission to the home. In the evening of the same day it did not exceed 99°. There was no change in the condition of the speech or of the eyes, but there was a little return of the power of swallowing and a marked diminution in the severity of the headache, the patient having a restful day, sleeping most of the time.

On the subsequent day the temperature and pulse-rate remained down, and during the earlier part of the day there was not much change. In the evening the breathing was not so easy, and coughing was difficult and ineffectual. Examination of the abdomen showed distinct epigastric in-drawing with inspiration, evidently due to paresis of the diaphragm. Another injection of the vaccine, dose 20 millions, was administered. The temperature by this time had risen to 100°, and the pulse rate to 96 per minute. In addition to the vaccine, hypodermic injections of liq. strychninæ (mⱯ.v.) were ordered to be given every four hours. During the night the patient slept about three hours altogether, not continuously, and in his waking intervals was able to swallow a little jelly and a little egg and milk.

In the morning the temperature was 98·2° and the pulse 80. Movement of the diaphragm was no better, but swallowing was performed more easily and the dribbling of saliva was less. Vision was improved to some extent, and the patient was able—indistinctly, however—to say "yes" and "no." There was no impairment of consciousness, and at this stage he became somewhat emotional, appearing to appreciate his condition and to feel the position acutely. Intelligent attempts were made to indicate his wants by gestures, and this was his only means of communication, for although he could write down any particular letter of the alphabet when asked to do so, he was unable to write words either spontaneously or from dictation.

During the next two days swallowing became much easier, and the tongue could be protruded a little beyond the lips. Some slight improvement in speech also occurred. On April 14th there was very little impairment of the diaphragm to be detected, and subsequently the movement was normal.

From this point improvement was rapid. The power of swallowing quickly returned, together with the movements of the tongue and lips. The power of speech also returned quickly, so much so that the patient was able to speak perfectly on April 16th. By this time also vision was largely restored, although the diplopia persisted in lessening degree for a few days longer. No abnormality could be detected in the fundus at any time.

On April 17th the patient noticed that his hearing was impaired on the left side. Hearing had never been so good on this side as on the other, but in a few days he was unable to hear a watch pressed close to the ear, nor could it be heard when applied to the head on the left side. The deafness persisted for three or four days and then gradually cleared up.

The patient left the home on May 1st, having made a complete recovery from his paralytic symptoms. I saw him again on May 18th, when the only evidence of his previous illness was a decided lack of mental energy. His mental faculties were unimpaired, but there was a distinct diminution in the power of attention and concentration, with a resulting feeling of inability to do any work of any kind. And even now, after an interval of nine months, although the man is in full practice of his profession, he informs me that he has not regained his nervous energy completely, and that mental fatigue is much more readily induced than formerly.

There is a striking similarity in the mode of onset in these two cases. In both there was a period of fever with prostration and general symptoms, which only lasted a few days. After a short interval this was succeeded by a return of fever with intense headache and pronounced nervous symptoms. An initial diagnosis of influenza was made in each case on account of the high fever and prostration, but this was not confirmed bacteriologically. If the diagnosis were correct, and there is no reason to think otherwise, in neither instance could the influenzal attack be considered severe. But in view of subsequent events it is clear that even a mild influenza may be followed by alarming and serious sequelæ. In my opinion, true influenza at the present time is not so common a disorder as one might suppose, but when it does occur, no matter whether the attack be mild or severe, it is a serious infection.

Encephalitis, or inflammation of the brain substance, is now recognised as a sequela of several infections, notably

influenza, diphtheria, and typhoid fever. It has occurred also apparently as a result of syphilis, but here probably the affection is usually subacute or chronic rather than acute, and is associated with disease of the membranes, being essentially a meningo-encephalitis. Certain toxic agents, especially alcohol and more rarely lead, have been held responsible for the causation in some instances. Of all these causes, however, there is, I think, no doubt that influenza is the precursor in the great majority of cases.

The inflammation of the brain is a non-suppurative one and may affect any part of the organ. If the brain is extensively affected the condition is regarded as a diffuse encephalitis. It is in cases of this kind that the greatest difficulty is experienced in diagnosis, as the acute onset, associated with fever, intense headache, delirium, and drowsiness deepening into coma, may in the possible absence of signs of paralysis suggest nothing more than an intense toxæmia. The inflammatory process may, on the other hand, be limited to some local area of the brain, and when this is the case, although both grey and white matter may be affected, it is usually the grey matter of the mid- and hind-brain (that of the cranial nerve nuclei and the cerebral cortex) which is involved. Consequently this type of the disease, known as acute focal encephalitis, is usually associated with paralytic symptoms, and is easier of diagnosis. And not only is the area of disease more limited in this than in the diffuse form, but as a rule the intensity of the inflammation is less, the general toxæmic symptoms are not so severe, and the prognosis is much more hopeful.

The pathological changes in both forms are described as consisting of vascular distension and thrombosis, hæmorrhagic extravasations, and exudations of leucocytes. The lesion is typical of an acute inflammation, but the nature of the causative organism has not so far been conclusively determined.

As a rule, in cases of acute focal encephalitis that have survived the acute symptoms, the residual effects have been local palsies of one or more cranial nerves, or complete or partial paralysis of a limb. In the two cases I report it is remarkable how complete was recovery, with entire absence of any residual paralysis. On this account alone it is difficult to imagine what was the precise nature of the pathological process existing in the brain. The onset of symptoms, particularly in the second case, although acute, was not so sudden as to suggest a purely vascular lesion such as hæmorrhage or thrombosis, even if the ultimate complete recovery did not render such a view impossible. If the symptoms were due to inflammation this must have been mild in degree, the effects being largely produced by vascular congestion and œdema. On this view it is conceivable that the cause was a toxæmia rather than a local microbic infection.

I am not inclined to attribute much importance to the use of the influenza vaccine in one of the cases, but it is an undoubted fact that manifest improvement occurred within the 12 hours following each dose. Whether this would have taken place without the vaccine it is impossible to say.

It is not uncommon after influenza for pronounced mental depression, even amounting to melancholia, to occur, and this may persist for a long time. And in other cases impairment of memory or other mental function is left as a legacy by the same infection. I think it is more than likely that these effects may be explained on the hypothesis that some temporary or permanent damage has been done to the emotional and intellectual areas of the brain by some such inflammatory process as I have been discussing, but which, in the absence of localising signs in the acute stage, cannot be recognised.

Leeds.

ST. JOHN AMBULANCE BRIGADE.—The King has fixed 3.30 P.M. on Saturday, June 22nd, for the inspection in Windsor Park of the Ambulance Corps and Nursing Divisions of the St. John Ambulance Brigade. Colonel Sir James Clark, Bart., C.B., late R.A.M.C., the Chief Commissioner, will be in command of the parade, and Major-General J. C. Dalton, R.A., Chief Commissioner of the brigade overseas, will be in command of the representatives of brigade units from the overseas dominions. 12,000 members have already sent in their names to attend the inspection, which will conclude with a display of ambulance work.

Medical Societies.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Malformation of Uterus.—Acute Puerperal Inversion of Uterus.—Abortion Tetanus.—Inversion Treated by Hysterectomy.—Gartnerian Cyst.—Exhibition of Specimens.

A MEETING of this society was held on May 17th, with Dr. E. O. CROFT, Vice-President, in the chair.

Dr. CROFT read notes of three cases of Malformation of the Uterus. 1. Uterus Didelphys. The first pregnancy proceeded to term, when a difficulty during delivery arose from the presence of a double vagina, a mesial septum undergoing partial rupture. When about six months advanced in her second pregnancy, examination of the patient revealed the remains of the septum forming a ridge in the lower part of the posterior wall of the vagina, and the upper part of the vagina was still double. In each compartment was found a normal cervix. The left cervix was that of the six months pregnant uterus. The right cervix was that of the right uterus of about the usual unimpregnated length. It was also noted that while the left pregnant cervix showed the usual signs of pregnancy—softening, patency, &c., the right cervix showed an old laceration with some eversion, indicating that the first pregnancy had occurred on that side. The remains of the vaginal septum was dissected away and the pregnancy continued to term.—2. Uterus Didelphys. The patient became pregnant for the first time three years after marriage. After about three months amenorrhœa symptoms as of threatened abortion came on, followed in a few days by severe pain in the left pelvic region with acute general symptoms. Examination revealed an apparently rather enlarged uterus with a larger very tender rounded swelling to the left of it. The symptoms and signs suggested an early pregnancy with an acute inflammatory condition of the left appendages, such as torsion of a cyst or an ectopic pregnancy. Just before operation an abortion of about ten weeks was expelled. The abdomen was opened. Complete double uterus and cervix were revealed. The right was that which had aborted, and its ovary and tube were healthy. The left swelling was a left uterus to which a large pyosalpinx was adherent with its corresponding ovary, also infected. The left ovary and pyosalpinx were easily separated and removed, and the patient rapidly recovered. Clinical evidence was conclusive of the gonorrhœal nature of infection.—3. Absence of Fallopian Tubes. The patient, who had been married for five years, had never been pregnant. An operation for dysmenorrhœa and dyspareunia had been performed with some relief. Recently a persistent pain in the right ovarian region with signs of an adnexal swelling on that side had developed. Prolonged rest treatment failed to relieve. An exploratory laparotomy revealed the fact that the corpus uteri was relatively small and cylindrical, with absence of usual intercornual width. From each cornu there was only a rudimentary trace of tube, less than half an inch long; beyond this there was no evidence of tubes on either side, there being merely a fold of peritoneum extending outwards to the pelvic wall. Ovaries: On the left side was a small slightly elevated patch of ovarian tissue lying flat on the posterior layer of the broad ligament, with no development of a mesovarium. On the right side the condition was similar, but from the ovary had developed a cyst about the size of a large plum. Owing to the absence of a mesovarium the cyst occupied the broad ligament, a large portion of which had to be removed with the cyst. The peritoneum was everywhere smooth and healthy, and there were no adhesions or other evidences of inflammatory disease, old or recent.

Professor J. B. HELLIER narrated the case of a young woman, aged 18 years, who was sent to the Leeds Infirmary from a distance of 36 miles with Acute Inversion of the Uterus. She was confined on March 24th, 1912, of her first child. There was some difficulty with the placenta, which was said to have been brought away in two pieces, and there was much post-partum hæmorrhage,

which continued more or less up to admission on March 28th. On admission she was blanched and very ill, the pulse varying from 128 to 140, and the temperature being about 102·5° F. The vagina was occupied by the fully inverted uterus, the os being effaced. The uterus felt like a large polypus, with a pedicle 2 inches thick. The endometrium had a grey sloughy appearance, and the vagina was full of dirty-brown offensive discharge. A small portion of placenta remained adherent to the uterus. The patient was anæsthetised with hedonal, about 820 c.c. of a 0·75 per cent. solution being injected into the veins at the elbow. After thorough disinfection of the vagina and uterus with lysol the inversion was reduced by manual taxis after about 15 minutes' perseverance. At first the uterus seemed so large and the pedicle so small and unyielding that reduction seemed unlikely to be accomplished without resort to a repositor, but at the end of the time mentioned it went up somewhat suddenly and easily. As the uterus was already in a condition of septic endometritis daily irrigation was ordered for the uterine cavity. Convalescence was retarded by a slight degree of phlebitis with swelling of the left leg, but this soon subsided, and she was discharged cured. Hedonal answered very well in this case and combined the advantage of saline infusion with anæsthetics. Dr. Hellier also mentioned a very similar case seen in 1909 in a patient attended by a midwife five days before he saw her. Here also the uterus was in a very offensive condition. Reduction was accomplished in about three minutes, but the patient suffered severely from sapræmia, although ultimately she made a good recovery under uterine antiseptic irrigation.

Dr. C. OLDFIELD (Leeds) related the following cases: 1. Abortion Tetanus. The patient was aged 39. Twelve days after a three months abortion symptoms of typical tetanus commenced. Antitetanic serum given subcutaneously and repeated in large doses gave no relief. Chloretone and other vaunted curative drugs had no effect, and the disease progressed until the patient was unable to swallow; general convulsions intervened and she became enfeebled and looked like dying very soon. By spinal puncture a few drachms of cerebro-spinal fluid were withdrawn, and 10 c.c. of antitetanic serum were injected into the spinal meningeal canal. Within 24 hours the patient could open her mouth, and in 48 hours she had little or no spasticity anywhere. She made a complete and rapid recovery.——2. Chronic Inversion of 23 Years' Standing Treated by Hysterectomy. The patient, aged 53, had had a severe labour 23 years ago when the "womb came down." She was ill for a while, but got about quite comfortably, only suffering from menorrhagia and dysmenorrhœa. For a few years she had to wear a pessary, but recently that did not relieve the bearing-down feelings. Aveling's repositor, tried 10 years ago at another hospital, had failed. Dr. Oldfield had tried it for two days with no benefit. Incision of the cervix did not enable him to re-invert, nor did continuance of the incision downwards as far as the fundus and upwards into Douglas's pouch. Hysterectomy was easy and rapid, and it relieved the symptoms.——3. Gartnerian Cyst. The patient, aged 35, had had an abdominal tumour for several years. The symptoms were pain and menorrhagia and relative sterility. It was thought to be a fibroid, but had been found to be a slightly distended broad ligament cyst. It contained blood-stained fluid and a large quantity of blood-stained friable solid growth. It was adherent to neighbouring structures, but could be enucleated except from the uterus near the cervix, where it was firmly adherent by a broad band of fleshy tissue. Sections of friable solid growth showed an adenoma-like structure, the cells being long and cylindrical, and the interstitial tissues were densely infiltrated with small round cells.

Dr. CROFT showed the following specimens: 1. Uterus containing a Large Fibroid removed by subtotal hysterectomy during the puerperium for acute symptoms associated with red degeneration arising ten days after normal delivery. 2. "Fibrotic" Uterus removed from a patient aged 50 for long-standing hæmorrhage unrelieved by curetting and other treatment. There was great uniform enlargement of the uterine walls, with excess of fibrous tissue especially marked around the blood-vessels. 3. Cystadenomatous Ovarian Tumour with well-marked calcification of the cyst walls.

EDINBURGH OBSTETRICAL SOCIETY.

Complete Absence of the Vagina.—Fibroids.—Pubiotomy.

A MEETING of this society was held on May 8th, Dr. J. HAIG FERGUSON, the President, being in the chair.

Dr. W. FORDYCE read a paper on a case of Complete Absence of the Vagina, with Regurgitation of Blood from the Uterus into the Peritoneal Cavity. The patient was a girl, aged 19, small and poorly developed, and evidently defective mentally. She had suffered from epilepsy for five years, the fits recurring at long intervals, though more frequent recently. She had never menstruated, but had had severe attacks of pain recurring every four weeks for the last six months, and at irregular intervals for about one year before that. The attacks of pain lasted about one week, and were becoming increasingly severe; in the intervals she was quite free from pain. The epileptic fits had in recent months only occurred when she had these attacks of pain. There was no ostium vaginæ and no suggestion of any hymen. Examination by a catheter in the bladder and the finger in the rectum revealed only a very thin partition. High up in the rectum the finger could feel a flaccid diffuse swelling; the uterus was felt to be small, and no dilatation of the vagina was made out. An operation to establish a vaginal canal by dissection was not successful. Four weeks later there was a recurrence of very severe abdominal pain, and the swelling, which meantime had disappeared, was felt by rectal examination. This attack was accompanied by two severe epileptic fits. On the fourth day the abdomen was opened, and was found to contain from 4 to 6 oz. of dark fluid blood without clots; it was this blood in the pouch of Douglas that formed the swelling felt by the rectum. There were no adhesions and no signs of any organisation or consolidation of the blood. The deep staining of the peritoneum and the amount of blood present indicated that it was not all of recent origin. The uterus was normal, but felt slightly distended and the right Fallopian tube was short, straight, and moderately distended with dark blood, which was oozing from its fimbriated end. On compressing the uterus some blood was forced along the tube into the peritoneal cavity. The left tube was normal and contained no blood. It seemed, therefore, that there was present a patent right Fallopian tube, and that the menstrual blood at each period had regurgitated into the peritoneal cavity. This resulted in the severe abdominal pain recurring every four weeks. As the uterus, tubes, and ovaries seemed normal, another attempt was made later to establish a vaginal canal, but unsuccessfully. A second abdominal operation was carried out during the next attack of pain, and revealed a condition exactly similar to that found before. The patient was taking the anæsthetic very badly, so there was no time to remove the uterus, but both appendages were removed. This it was hoped would stop the menstruation and have also a beneficial effect on the epileptic fits, which seemed to be more or less menstrual in their occurrence. But about a month after there was a recurrence of the abdominal pain as intense as usual. On rectal examination a tense painful swelling could be felt bimanually, which seemed to be a distended uterus. Her condition became so serious that a third abdominal section was decided upon. There was no blood in the peritoneum, but the uterus, which formerly was small, was now distended to about the size of a two and a half months pregnancy. Before it could be removed it had to be incised, when a large quantity of dark blood and muco-purulent fluid escaped. In removing the uterus the cervical canal was found dilated so as easily to admit the forefinger. There was no vaginal *cul de sac* below this. The patient recovered well and had remained well since. The special points were the regurgitation of the menstrual blood into the peritoneum, causing the recurring intensely severe pain, the absence of the vagina, and also the recurrence of menstruation after complete removal of the ovaries. It was possible that some of the pain in cases of dysmenorrhœa might be due to some regurgitation of blood into the peritoneum.—The PRESIDENT was of opinion that some hæmorrhage into the peritoneal cavity during menstruation probably occurred more frequently than was at present supposed; even the rupture of a Graafian follicle must

always be attended with a little hæmorrhage. His experience of leaving large quantities of blood in the peritoneal cavity was that it was completely absorbed, as on subsequent operations no trace could be found nor any adhesions as a result.—Dr. J. LAMOND LACKIE and Dr. J. YOUNG made remarks on the paper, and Dr. FORDYCE replied.

Sir J. HALLIDAY CROOM related the somewhat remarkable clinical history of two groups of Fibroids. They occurred in two sisters—twins. From their sex and their likeness to each other they were almost certainly uniovular twins. They both began to menstruate when they were 13, almost identically on the same day, and went on normally till they were 30, when they both began to have very profuse periods, and both developed fibroids. They both came under his charge in the hospital more than 20 years ago, and within a year of each other. They both had oöphorectomy performed. In one, however, an ovary had to be left. At the time referred to oöphorectomy was frequently performed for fibroids, and this was the operation selected in both cases. The hæmorrhage continued in both with more or less frequency, until an uneventful menopause was reached by both of them at the age of 50. Three years subsequently there was hæmorrhage and an offensive discharge which proved to be due to adeno-carcinoma of the body of the uterus in both cases. Post-mortem findings and specimens were shown. After a short reference to the surgical methods of dealing with fibroids, Sir J. H. Croom went on to discuss the question of adeno-carcinoma of the uterus complicating myomata.—The PRESIDENT remarked that there was not a great risk of fibroids becoming affected with sarcomata or adeno-carcinomata. Kelly found 1·7 per cent. in 1400 to 1500 cases; Fehling 2 per cent.

Dr. J. LAMOND LACKIE read an experience of Three Cases of Pubiotomy. The first case was pregnant for the fifth time; two children had been born with forceps and twice craniotomy had been performed. Her conjugate was about 3¼ inches. Labour was allowed to progress till the os was nearly dilated, when the bulging membranes were ruptured; strong pains supervened, but the head did not become engaged in the brim. The pubiotomy was performed with Döderlein's needle and wire saw. After the bone was sawn through the bones did not spring apart. The patient was put in Walcher's position and forceps were applied, the child being delivered very easily. The operation and delivery lasted 17 minutes. She was walking on the seventeenth day, but an attack of phlebitis kept her in bed for three weeks more. She was then able to walk without any limp or pain. Case 2 was in her fourth pregnancy; her first was born dead at the seventh month, the second born dead with forceps at the eighth month, and the third with forceps at full time. Her true conjugate was about 3¼ inches. In this case an effort was made to deliver with high forceps, but vigorous traction could not make an impression on the descent of the head. Pubiotomy was performed and forceps applied in Walcher's position. The child was born with difficulty; the child was large, weighing 8 lb. 15 oz. During the puerperium the patient complained of severe pain in the left sacro-iliac joint and down the sciatic nerve requiring injections of heroin. On the twenty-first day she was able to walk with some pain in the joint, but this had all disappeared by the thirtieth day, when she was able to walk some distance without any pain. The third case had two full-time labours delivered by craniotomy; her true conjugate was about 3¼ inches. When labour had progressed some hours forceps were applied, but it was impossible to get the head to engage. The forceps were left on and pubiotomy performed, when delivery was easily effected. She left the hospital on the twenty-eighth day, walking with confidence and without pain. Radiograms in these cases showed the union must have been fibrous only and gave support to the contention that the capacity of the pelvis was permanently enlarged as many cases had been recorded in which subsequent labours had been comparatively easy. It was interesting to note that in these cases separation of the bones did not take place till the head entered the brim. The operation should never be attempted in a primipara because of certainty of laceration of the soft parts nor if the true conjugate was less than three inches. Induction of premature labour was the operation which competed with pubiotomy. Recent statistics showed that 50 to 70 per cent. of the infants after induced premature labour died in the first year, and there was a 35 per cent. immediate mortality; the maternal mortality was 1¼ per cent. Whereas Schauta's last 50 cases of pubiotomy gave a fœtal mortality of only 6 per cent. and maternal *nil*, in a large series of cases in Germany the recent statistics showed a maternal mortality of 4·4 per cent., which was the same as for high forceps; and with high forceps the fœtal mortality was 35 per cent.—Dr. FORDYCE said that at St. Mary's Hospital, Manchester, it was found after investigation that the mortality of infants born after induction of premature labour was very much less than that of ordinary infants under 5 years of age, probably due to the greater care bestowed on them.—Dr. A. YOUNG referred to the statistics of Whitridge Williams, who had 35 cases of pubiotomy without a death, and collected 900 cases which showed a mortality of 2·3 per cent.—The PRESIDENT, Dr. G. KEPPIE PATERSON, Dr. E. F. ARMOUR, and Dr. R. W. JOHNSTONE discussed the paper, and Dr. LACKIE replied.

SCOTTISH OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

Oral Education of the Deaf.—Lantern Demonstrations of Ear Disease.—Presentation and Report of Cases.

A MEETING of this society was held in the Royal Infirmary, Glasgow, on May 11th, Dr. J. KERR LOVE being in the chair.

Dr. KERR LOVE gave a short but most interesting survey of the Oral Method of Educating the Deaf, drawing special attention to the value of remains of hearing in the retention or acquisition of speech by those who have become deaf in early childhood. Some thought that the expense and trouble of teaching deaf-mutes to lip-read and to speak were not compensated for by the degree and quality of speech attained. But the mere power to converse, to comprehend the wants of others, and make known their own in a language which all understood, was of inestimable value. Dr. Love protested against the popular idea that deaf-mutes were mentally deficient. There was not a greater proportion of such among them than among hearing children. Without other stigmata of mental deficiency one had no right so to class the deaf-mute child. They were quite as sharp and as capable of development as normally hearing children. This was borne out by the children who were present to illustrate his remarks. [With the assistance of Miss Douglas, a teacher of the deaf, a demonstration of methods of teaching lip-reading and speech was given, some of the children showing remarkable ability and intelligence. Attention, too, was drawn to the pleasanter and more modulated voice of those in whom there was some residual hearing. The demonstration was much appreciated by those present, and the thanks of the society were accorded to Dr. Love and to Miss Douglas.]

Dr. J. S. FRASER gave a lantern demonstration of the Inner Ear from cases of Congenital Deafness, showing the changes found especially in the organ of Corti, Reissner's membrane, and the membrana tectoria.

Dr. ALBERT A GRAY gave a lantern demonstration showing the Changes in the Labyrinthine Capsule in Otosclerosis, especially in the neighbourhood of the oval window. He said there were no demonstrable changes in the nerves in uncomplicated cases of otosclerosis. While some cases probably arose secondarily to middle-ear conditions the majority, he thought, had not a middle-ear origin.

Dr. KERR LOVE showed two patients operated on for Brain Abscess complicating middle-ear suppuration, one a cerebral and the other a cerebellar abscess. Also a man whose left external ear and surrounding structures he had removed six months ago for malignant disease. A recurrence in the mastoid process had since been removed together with the bone. Since then X ray treatment had been adopted, but he was not hopeful.

Dr. JAMES ADAM showed a woman with a Bony Swelling on either upper jaw involving the alveolus and the anterior antral wall. He considered these growths to be of the nature of hyperplastic osteitis of infective origin.—Several members looked upon them as dentigerous cysts, while Dr. A. BROWN

KELLY suggested that, from the symmetry, it might be leontiasis ossea.

Dr. ADAM also showed a female with a well-marked Tortuous Carotid on the posterior pharyngeal wall, and two boys under treatment by Split Tooth-plates to widen the Nasal Passages. In both the benefit to the nasal respiration appeared to be decided.—Dr. A. L. TURNER expressed the view held in America, where this method had had a more extended trial, that the expansion was due to separation of the intermaxillary suture.

Dr. P. N. GRANT showed two patients with Ulceration of Various Parts of the Nose, one showing a pure pneumococcal infection, the other a mixed infection by pneumococcus and other organisms. Both were under treatment by vaccines. Some members considered the former case, at any rate, to be syphilitic.

Dr. J. WALKER DOWNIE showed a female, aged 42, with an extensive Venous Angioma affecting the right side of the forehead, nose, upper lip, and right half of the palate. After being stationary for 20 years, a few weeks ago the lip portion began to extend. He also showed another venous case with a swelling on the left side of the nose externally.

Dr. J. G. CONNAL showed a patient on whom he had operated for septic thrombosis of the lateral sinus with extradural abscess consequent on middle-ear suppuration. The internal jugular was tied and the sinus opened and drained. He also showed a man with a large exostosis of the external auditory meatus. As the patient heard fairly well and there were no disturbing symptoms he did not think operation was called for.

Dr. BROWN KELLY showed four patients illustrating the value of the direct method in the diagnosis of laryngeal conditions. Two of these, brothers, aged 3 and 5, were the subjects of prolonged adductor spasm. The children were much below the normal size, very rickety, and showed signs of delayed mental development. In the younger boy the respiration became so difficult that tracheotomy had to be performed. The third case was also one of laryngeal stridor, but in this case, an infant aged 20 months, direct laryngoscopy showed a long tapering epiglottis rolled backwards so as to bring the aryepiglottic folds almost into apposition. During inspiration the arytenoids were drawn forward, the flaccid tissue on their summits was made to vibrate, and the glottis was reduced to a small quadrilateral chink. The fourth case was one of compression of the bronchi and œsophagus in a man of 27. The examination of the larynx revealed left recurrent paralysis. Bronchoscopy showed occlusion of the left main bronchus and flattening of the right. On œsophagoscopy the œsophagus was seen to be obstructed by a smooth lobed bulging of the anterior wall. There was no abnormal pulsation to be seen anywhere. The underlying disease was probably a rapidly growing neoplasm of the posterior mediastinum. Examination for tubercle was negative. Dr. Kelly also showed an infant aged 4 months suffering from a gonococcal infection of the nose.—The cases were discussed by Dr W. S. SYME, Dr. R. FULLERTON, Dr. ADAM, Dr. TURNER, and Dr. FRASER.

Dr. W. S. SYME showed an infant, aged 2 months, with bony occlusion of the posterior nares. The child was unable to breathe when taking the breast. The nostrils contained sticky purulent discharge, and with a probe the bony diaphragm could be distinctly felt, and the probe could not be passed into the naso-pharynx. It was thought that at present, at any rate, operation would lead to no satisfactory result. Dr. Syme also showed a boy with Congenital Fenestration of the Faucial Pillars who had suffered from no inflammatory affection of his throat, and reported a fatal case of abscess of the brain and leptomeningitis as a complication of posterior ethmoidal and sphenoidal disease in a woman, aged 25, who had suffered from post-nasal discharge for some years. Post-mortem examination showed a large opening in the roof of the posterior ethmoidal cell, destruction of the dura and of the surface of the brain in the neighbourhood, and a narrow abscess cavity leading from this part just beneath the under surface of the frontal lobe backwards till it opened into the third ventricle.

It was decided to hold the next meeting in November in the Royal Infirmary, Edinburgh, under the chairmanship of Dr. J. S. Fraser.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Myelogenous Leukæmia.—Muscular Dystrophy.

A MEETING of this section was held on April 26th, Sir JOHN MOORE, the President, being in the chair.

Dr. A. R. PARSONS referred to the clinical records of four cases of Myelogenous Leukæmia which had been under his care in the Royal City of Dublin Hospital. He illustrated his observations by several lantern slides, which showed the size of the spleen and liver before and after treatment, the alterations in the number of the leucocytes, and the output of uric acid, phosphates, and sulphates. He considered that the records supported the following propositions: 1. That a considerable reduction in the size of the spleen in myelogenous leukæmia could be induced by the use of X rays, either with or without arsenic. 2. That a marked reduction in the number of the leucocytes followed on the same line of treatment. 3. That there was no material increase in the output of uric acid, phosphates, and sulphates, while this material reduction in the leucocytes was taking place. 4. That the improvement under treatment was very striking, but was not permanent. A necropsy was obtained in one of the cases which succumbed to acute miliary tuberculosis of the lungs, and the spleen (3 lb. 3 oz.), liver (7½ lb.), kidneys, lungs, and enlarged glands, and a portion of a rib were handed to Dr. A. C. O'Sullivan for examination.—Dr. O SULLIVAN demonstrated the pathology of these cases by means of lantern slides. He said that in leukæmia myelocytes tended to collect in greatest numbers in the splenic blood spaces, hence the enlargement of the spleen. The X rays destroyed the myelocytes in the splenic blood spaces and those that were circulating through the spleen. Thus a diminution in myelocytes in the circulating blood and a diminution in the size of the spleen were found after X ray treatment. The fact that X ray treatment was not of permanent use he attributed to an increase in the spleen of connective tissue which interfered with the penetration of the rays.—Dr. C. M. BENSON said there was a certain amount of difficulty to be overcome in treating patients with the X rays in such cases—viz., to give the patient sufficient dosage of the rays without causing dermatitis. He advised the exposure of a small area of the skin on each occasion, and in this way the gradual exposure of the whole spleen could be brought about. A hard tube should be used, and if it was considered necessary a thin aluminium screen. If such precautions were taken dermatitis could be avoided. He pointed out that in cases of relapse, where the patient came up for treatment a second time, the spleen did not retract at the same rate, and never to the same extent, nor did the blood count go back at the same rate as during the initial treatment.—Dr CAMPBELL said he had had opportunity of observing several cases of myelogenous leukæmia and two cases of the lymphatic type. One case was a child, aged about 15 months, which was under treatment for what was regarded as rickets, but an examination of the blood showed typical myelogenous leukæmia. A second and more interesting case that came under his notice was that of a child, the mother of whom was under treatment for myelogenous leukæmia at the same time. The woman's blood count showed 400 000 white blood cells, which, after five months' treatment, were reduced to about 5000.—Dr. W. D. O'KELLY said that in one case of myelogenous leukæmia which he had had under treatment, as the patient approached death the colour index got gradually higher. As he had not met with a sufficiently large number of cases he did not know if this was a common experience.—Dr. PARSONS, in replying, said he could not agree with the President that, notwithstanding the remarkable influence of the X rays, myelogenous leukæmia was as malignant as ever, as the last case he had treated gave him some encouragement; counting from the establishment of well-marked signs the patient lived for six years, and the cause of death was not myelogenous leukæmia, but miliary tuberculosis. He did not think that dermatitis caused by the X ray treatment did any harm. Some striking results had been obtained by injection of salvarsan—better, he thought, than had ever been attained by the use of other preparations of arsenic.

Professor JAMES CRAIG exhibited a young man, aged 22 years, who was suffering from Progressive Muscular Dystrophy. There was no family history of a similar affection, and he was strong and athletic until he was 18 years of age. Weakness of the back then began and gradually increased, causing him to give up work at the age of 20 years. Present condition: The scapulæ are winged; there is some lordosis, and a waddling gait. The following muscles are wasted on both sides: the serratus magnus, latissimus dorsi, and the pectorals; the erector spinæ in the lumbar region, the gluteals (very markedly), the hamstrings, and the adductors of the thigh. On the other hand, the infraspinatus, the deltoid, triceps, and biceps are all well developed, as are also the muscles of the forearms and hands. The calf muscles are strikingly large. Measurements of the legs are: below gluteal fold, 15½ in.; mid-thigh, 15½ in.; calf, 14¼ in. The muscles of the face are healthy; there are no fibrillary twitchings; sensation is perfect; tendon and organic reflexes are present. The wasted muscles respond slowly and feebly to the faradic current, but there is no reaction of degeneration. The patient gets into the erect position with the help of his hands pressed upon his thighs. The case was regarded as one of pseudo-hypertrophic paralysis, but it could as readily be described as belonging to the juvenile type of Erb.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on May 21st, Dr. S. Lodge being in the chair.—The following specimens and cases were shown:—Dr. A. F. Martin: Pile-bearing area of Mucous Membrane removed by Whitehead's operation.—Mr. F. W. Goyder: (1) Microscopical Demonstration; (2) Models from cases of Cleft Palate; and (3) case after Proximal and Distal Ligature for Subclavian Aneurysm.—Dr. T. J. Wood: Case of Fractured Femur, united after three years, treated by open operation and Thomas's splint.—Mr. G. H. Oliver read a paper on an unusual form of Congenital Ptosis. He said that congenital ptosis was a condition which usually affected both eyes, and was characterised by a drooping of the upper lids, frequently associated with epicanthus and constituting about four-fifths of all cases. The form to which he wished to draw attention was one that had very little in common with that already mentioned, in that only one lid was affected and the muscle that raised it was not paralysed. The most notable feature of these cases was that when the mouth was open the upper eyelid, which was drooping before, sprang up suddenly to such an extent as to raise the edge of the lid some millimetres above the margin of the cornea. After citing the literature on this subject Mr. Oliver described a case, illustrating it with photographs. The patient was a healthy boy with a good family history. He was affected with complete ptosis of the upper eyelid (right). When the left eye was closed the right one could be opened, and at the same time there was a lateral movement of the jaw. On opening his mouth suddenly and forcibly the drooping lid flew up, falling again when the mouth was closed. The same thing occurred when the jaw was moved to the opposite side to the ptosis, so that it was easy to imagine what took place when the patient was eating. The superior rectus was paralysed, for on the boy being asked to direct his glance upwards the left eye alone did so, the optic axis of the right eye not being raised above the horizontal plane. The pupillary movements were normal. The prognosis seemed to be favourable, inasmuch as the larger number of cases had been seen in children, the inference being that the anomaly disappeared in adult life. Probably by experience the patients gained more or less control over the muscles, which had such an unnatural innervation. For treatment most of the recorded cases had been left to nature. One or two had been quite successfully operated on. As showing the infrequent occurrence of the "jaw-winking" movement as it had been called, no instance had occurred among the patients at Bradford Royal Eye and Ear Hospital among some hundreds of thousands of cases.—The case was discussed, and Mr. Oliver replied.

THE LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held on May 21st, Dr. Morgan Dockrell, the President, being in the chair.—The following clinical cases were shown:—The President: (1) Anæsthetic Lepra; and (2) Angio-keratoma.—Dr. J. L. Bunch: An Anomalous case of Sycosis with Cultures of a Fungus.—Dr. Knowsley Sibley: (1) Eczema; and (2) Canities Areata.—Dr. W. Griffith: (1) Syphilis; and (2) Molluscum Contagiosum.—Dr. T. Galbraith: Cases of Sycosis treated by Vaccines.—Dr. Honoria Keer (Glasgow) showed for Dr. Vinrace a case of Ulcer of the Leg developing into Epithelioma.—Dr. W. Griffith opened a discussion on Recent Advances in the Study of Syphilis. He briefly reviewed the position of syphilology up to a few years ago, and pointed out that the study of the subject had been revolutionised by the scientific study of experimental syphilis, the discovery of the spirochæta pallida by Schaudinn, the elaboration of the serological test by Wassermann, and the use of Ehrlich's remedy, salvarsan. He briefly described the present methods of isolating and identifying the spirochæta and the technique of the Wassermann test, and discussed the value and the limitations of the latter. He then related his personal experience with salvarsan, and discussed the methods of administration, and the results in their relation to cure, relapses, after-effects, and fatalities, and maintained that, though salvarsan had a powerful effect on visible syphilitic lesions, and that it could be administered with a considerable degree of safety, mercury still remained, and probably would remain, the most generally useful remedy, because of its safety, efficacy, and simplicity, until it had been proved that the occasional untoward results which occurred after the use of salvarsan were avoidable and that the cures obtained by it were permanent.—Dr. R Prosser White (Wigan), in the course of the subsequent discussion, described his method of administering salvarsan by the method of multiple puncture.—Dr. Dockrell, Dr. Sibley, Dr. J. L. Phibbs, and other members also took part in the discussion.

Reviews and Notices of Books.

Treasury of Human Inheritance. Parts VII. and VIII. Section XV., A. *Dwarfism.* (Eugenics Laboratory Memoirs, XV.). By H. RISCHBIETH, M.A., M.D.Cantab., F.R.C.S. Eng.; and AMY BARRINGTON, Eugenics Laboratory. London: Dulau and Co. 1912. Pp. 355–573, with plates LI.–LVIII. + O–Z and AA–WW. Price 15*s.* net.

THIS memoir, forming part of the "Treasury of Human Inheritance," is something more than a collection of material for the study of the inheritance of dwarfism; it is almost a complete monograph of the subject. A brief review of its contents will give some idea of its scope. The introduction, after referring to the dwarf races, such as the Akkas, negrillos and negritos, and to the dwarfs, pygmies, fairies, pixies, cobbolds, and Nibelungs of legend and folk-lore, passes to a consideration of those individuals of abnormally small size who have figured in the pages of history or have become well known by being exhibited.

A classification of the varieties of dwarf growth forms the next section, four principal classes being recognised. 1. Achondroplasic dwarfs.—These have a head and trunk of approximately normal size, but very short legs and arms, the latter condition being brought about by the insufficient development and premature ossification and union of epiphyses with diaphyses. Physically they are usually muscular and mentally of normal intelligence. 2. Ateleiotic dwarfs (true dwarf growth, *echter Zwergwuchs, nanisme vrai*).—The word "ateleiosis" was introduced by Hastings Gilford, who first defined the condition. It signifies "not arriving at perfection." Dwarfs of this class may be of very small size, but their stature varies considerably, depending on the age at which cessation or retardation of growth commences. The limbs are not disproportionately small; indeed, the proportions of the body are approximately normal, except that the head is relatively somewhat too large. The defect is due to lack of growth of bone; thus, the epiphyses of the bones of the extremities are sometimes completely absent, and if present do not unite with the diaphyses, and the sternum remains throughout

life as a cartilaginous piece containing bony segments. The genital organs may be in an infantile or fœtal condition, and the secondary sexual characters are usually imperfectly developed or absent. The intelligence is said to be "slightly defective as a rule. This is shown by a childish, shy, and timid disposition and lack of self-reliance." Dr. Rischbieth remarks, however, in another place that even a person of normal intellect if 21 inches or so in height, and possibly habituated to ridicule from infancy, might well be shy and timid and lacking in self-reliance. 3. Dwarfs whose condition is due to lesions of the thyroid gland.—These have many characteristics in common with the last class, such as the condition of the bones, the "cretinoid" facial appearance, and the state of development of the genital organs. 4. Rachitic dwarfs.

As the memoir is concerned primarily with heredity, achondroplasia and ateleiosis (in the causation of which heredity appears to be a factor) are treated at considerably greater length than the other conditions producing dwarfism, a description of which is inserted for purposes of comparison. The sections dealing with the clinical symptoms, the character of the skeleton, the pathological anatomy, and the forms and complications of achondroplasia are taken largely, with a suitable acknowledgment, from the well-known work of Porak and Durante, "Les Micromélies Congénitales: Achondroplasie vraie et Dystrophie périostale" (Nouvelle Iconographie de la Salpêtrière, Tome XVIII., Paris, 1905). Dr. Rischbieth expresses his special indebtedness to Hastings Gilford for much of the article on ateleiosis, and includes an elaborate description of the microscopical appearances of the skeleton, translated from Paltauf.

The study of the inheritance of both of these pathological conditions is made difficult by circumstances which render infrequent their direct transmission from parents to children. Thus the female sex is more liable to achondroplasia than the male, but no achondroplasic woman can come to a normal confinement owing to the deformity of the pelvis. A child at full term must be delivered by Cæsarean section if born alive, and most of these children are either born dead or die soon after birth. Yet several of the pedigrees collected in this volume show two or more achondroplastic members, though in some large families fairly fully recorded for two or three generations the disease occurs only once. In ateleiosis there seems to be no special difficulty with regard to delivery, but direct transmission is rare owing to the fact that ateleiotic individuals are so frequently sterile. A cursory examination of the pedigrees would seem to show a well-marked hereditary tendency. In one recorded by Schmolck the disease occurs in four families with ancestry more or less in common; in one of these three of the siblings were affected, in two two, and in the other at least one. In another family described by Schaeffhausen four brothers certainly, and possibly six, of a family of ten children were ateleiotic. Altogether more than 230 pedigrees are illustrated in the plates. Detailed notes of each pedigree are given separately with full references, the whole forming a most valuable collection of material.

The other features of the memoir which call for special mention are the bibliography, the iconography, and the pictorial plates. The former contains more than 650 entries arranged in chronological order, and provided with an index to the authors; one of its most valuable characteristics is the brief but sufficient indication of the contents of the majority of the works cited, in so far as they refer to dwarfism. The iconography is a catalogue of the dwarfs depicted in the paintings of well-known masters, or represented by models, statues, &c., or in prints and books. The plates, which are very fully described, illustrate the appearance of living dwarfs of the different varieties and their skeletal peculiarities; they include reproductions of pictures of historical dwarfs.

The authors and editors are to be congratulated on the thoroughness of the conception and execution of the memoir, which forms a worthy addition to the series.

Outlines of Evolutionary Biology. By ARTHUR DENDY, D.Sc., F.R.S., Professor of Zoology in the University of London (King's College). London: Constable and Company, Limited. 1912. Pp. 454. Price 12*s.* 6*d.* net.

THE author has set himself a difficult task, but obviously one he has undertaken with a full knowledge of the facts and theories of "evolutionary biology." Biology being the fundamental science of living beings in all their manifold relations, the author has written this book to be of use "to those who have had no special biological training, as well as to students who have taken the ordinary first year's course." The subject, he remarks, is but little encouraged by educational authorities in this country; it has no place in the ordinary school curriculum, and even in our universities it has been thrust into the background. He, however, lives in the hope that we shall perhaps see the necessity for making biology, in the widest sense of the term, one of the foundation stones of our educational system. In this spirit he approaches his work.

The work itself is divided into five parts. Part I. (pp. 1–80) deals with the Structure and Function of Organisms and the Cell Theory. The general structure and functions of animals and plants are dealt with—amœba being taken as a typical organism, which leads up to a discourse on protoplasm, while hæmatococcus leads up to the story of the differences between animals and plants. The type-system is discarded as not suitable for the author's purpose. Such questions as the organism viewed as a machine and the source of energy in living beings are briefly summarised, and then we pass on to the cell-theory. We notice that "proteid" and not "protein" is used throughout. Several of the illustrations are from photographs: in some cases a good drawing would have been better. The cell as a physiological unit carries the reader on to the multiplication of cells and the phenomena of mitosis.

Part II. deals with the Evolution of Sex (pp. 81–147), beginning with the Protista and the sexual phenomena in multicellular plants, the suppression of the gametophyte in flowering plants, and the distinction between somatic and germ cells. Sexual phenomena in multicellular animals are illustrated by Hydra and Obelia. The question of alternation of generations is introduced and described, and the reader is led on to the cœlomate type of structure, secondary sexual characters, the origin and maturation of germ cells, the reduction of chromosomes, sex determination in insects, different forms of gametes, mutual attraction of gametes, and the problems of fertilisation and parthenogenesis. This part contains such a wealth of detail and so many technical terms as to make one ask if those who "have had no special biological training" will be able to follow it.

Part III., on Variation and Heredity (pp. 148–210), in spite of the necessary use of many technical terms, will prove interesting, not only to the student of biology, but also to those "who have had no special biological training." The well-known phenomena of variation in its several senses, including the observations of Hugo de Vries amongst plants, lead up to the question of somatogenic or "acquired" variations, and then to blastogenic or germinal variations. Heredity next holds the field, and perhaps the author is at his best in expounding in a singularly lucid manner the theories of Darwin and Weismann, and

what is called the mnemic theory of heredity, including the inheritance of acquired characters, regarding which Professor Dendy makes some ingenious suggestions. This part ends with a very readable account of Mendel's experiments in hybridisation and Galton's law of inheritance.

In Part IV., which deals with Organic Evolution and Adaptation, there is unlimited scope both for theory and facts. The author cites Vergil's well-known account of the generation of a swarm of bees from the decomposing body of a dead ox. We miss, however, one of the classical observations of the great Tuscan poet and philosopher, Redi, on the generation of the blow-fly in meat exposed to air, and his simple method of proving that so far as insects are concerned there is no spontaneous generation. If we remember aright this experiment was often quoted by the late Lord Lister. This part is both interesting and fascinating, and includes some of the author's own observations on sponges and their spicules. Connecting links, vestigial structures, reversion, ontogeny, geographical distribution of animals and plants, adaptation to environment, colouration and all its far-reaching problems, the romance of insect fertilisation of flowers, are some of the problems that absorb the reader.

In Part V., by way of introduction to the discussion of the Factors of Organic Evolution (pp. 365–427), two chapters are devoted to the views of Buffon, Erasmus Darwin, Lamarck, Charles Darwin, Robert Chambers, and Alfred Russel Wallace. The author, in our opinion, has adopted the wise and not very common method of presenting "the opinions of classical authors as far as possible by means of quotations from their own writings." So far as we can judge, the quotations are both apt and convincing.

We welcome this interesting, erudite, suggestive, and withal fascinating account of "evolutionary biology."

Studies in Pulmonary Tuberculosis: its Dissemination, Specific Diagnosis and Treatment; and Some Points in its Pathology. By FREDERICK GUY GRIFFITHS, B.A., M.D., Ch.M. Syd., Honorary Pathologist and Honorary Assistant Physician, Royal North Shore Hospital of Sydney. London: Baillière, Tindall, and Cox. 1911. Pp. 113. Price 5*s*.

OUR impression after perusal of this work, which is founded on a thesis for the M.D. degree of the University of Sydney, is that it has been written under absorption in one narrow line of thought, by one who has not paid due attention to the investigations of those whose results do not coincide with his. Further, attention has been so concentrated on one system of the body that the symptoms and effects produced by disorders of other systems and organs have been overlooked. Dr. Griffiths is enthusiastic over tuberculin as a diagnostic agent. The majority of competent observers have arrived at the conclusion that the results of tuberculin in any form used for diagnosis must be received with the greatest caution. Dr. Griffiths says: "I have said that some authorities who emphasise the difficulty of early diagnosis nevertheless write against the application of the tuberculin test. Others, better advised, urge its adoption." We think that Dr. Griffiths would have been "better advised" if he had pursued his studies in a more liberal spirit and paid due attention to the researches of Franz, Citron, Gordon, and numerous others who have shown that the febrile reaction to tuberculin cannot be depended upon as a proof of active tuberculosis. If Dr. Griffiths has read the results of the above observers, he, at any rate, refrains from referring to them.

Again, his remarks on the symptomatology of early tuberculosis before physical signs have appeared in the lungs show a lack of judgment. "The patient," he says, "may complain of loss of appetite, of languor, of loss of weight, of flushing, pallor, indigestion, palpitation, 'rheumatism,' i.e., pains in the limbs and joints, pain in the chest, even of cough." Surely Dr. Griffiths would not contend that such symptoms are, in the majority of instances, due to early pulmonary tuberculosis! In how many cases were the patients carefully examined for disorders of the digestive tract, including lesions in the mouth, such as pyorrhœa alveolaris? To suggest that all patients suffering from these symptoms should be injected with tuberculin, and that if a febrile reaction ensues a course of tuberculin treatment is indicated, is entirely contrary to the general opinion arrived at by numerous observers in all countries. Those who hold Dr. Griffiths's views are in a very small minority, and can produce but little proof founded on modern scientific investigations.

We have no desire to belittle the value of tuberculin or of similar preparations in the treatment of pulmonary tuberculosis; on the contrary, we believe there is every reason to consider that very successful results are sometimes procured. But we do express the opinion that misleading conclusions are unavoidable if research in any branch of medicine is conducted on too narrow lines, while the results of other observers who think differently are entirely ignored.

A Manual of Public Health Law. By BERTRAM JACOBS, of the Inner Temple and South Wales Circuit, Barrister-at-Law. London: Sweet and Maxwell, Limited. 1912. Pp. 204. Price 7*s*. 6*d*.

IN his manual of the law relating to the public health the author designedly deals with a wider and more varied subject-matter than the provisions of the Public Health Acts technically so named. His book is intended to be a guide to those Acts, but also to give in outline other statutes which side by side with them bear less directly upon the same important topic.

The modern awakening of legislative attention to the necessity for safeguarding the public health by provision for the housing of the working classes, for regulating their food-supply, and for insuring them against disability to earn their livelihood through unemployment or disease, has enlarged the duties of those engaged in local government very considerably, and among the officers of local bodies who have to instruct themselves as to duties and powers of considerable importance and some complexity members of the medical profession occupy a prominent position. Mr. Jacobs has compiled his book with a view to assist, among others, those studying for public examinations which include in their subjects the law relating to public health, and those who may be qualifying for such posts as medical officer of health, inspector of nuisances, and sanitary inspector, and he has provided a convenient and instructive handbook. He warns practitioners, however—by which term he means, presumably, legal practitioners—that a moderate-sized volume such as his has to summarise a great deal of matter within a very small space, and in these circumstances sections and their interpretation may sometimes appear in so highly condensed a form that absolute accuracy of statement can hardly be guaranteed.

Mr. Jacobs might with advantage have supplemented his text with a fuller index, but those who want to find a particular topic dealt with will probably manage to do so by the aid of his table of contents and table of statutes. The growth of the scope of the law relating to public health will be gathered from the fact that the Acts of Parliament which the author has selected as relevant enough for reference are 135 in number, of which about half have come into force during the last 20 years. Truly, a medical officer of health and his subordinates have plenty to learn.

LIBRARY TABLE.

Annals of Tropical Medicine and Parasitology. Vol. VI, No. 1, A.—This number of the *Annals*, issued by the Liverpool School of Tropical Medicine, contains two very valuable and interesting contributions, both of which are deserving of careful study. The first of these is a joint production by Dr. Allan Kinghorn and Dr. Warrington Yorke on the Transmission of Human Trypanosomes by Glossina Morsitans, and on the Occurrence of Human Trypanosomes in Game. This paper is in reality the first interim report of the Sleeping Sickness Commission despatched by the British South African Company to the Luangwa Valley in Northern Rhodesia to investigate the alleged presence of human trypanosomiasis, notwithstanding the absence of Glossina palpalis in that region. As a result of this inquiry there seems to be no doubt that the human trypanosome, T. rhodesiense, is transmitted by Glossina morsitans in the Luangwa Valley. It was shown by experiments that approximately 5 per cent. of these flies may become permanently infected and capable of spreading the virus of sleeping sickness. After a fly has had an infecting feed the time that elapses before the insect becomes itself infected is about 14 days. When once infected the fly apparently retains the power of transmitting the disease during the remainder of its life. Glossina morsitans infected by T. rhodesiense has been found in nature, and certain wild buck have been discovered with this trypanosome in their blood, as also a single native dog discovered 50 miles away from the commissioners' laboratory. It is somewhat disconcerting to find that Glossina palpalis is not the only tsetse fly that can transmit human trypanosomiasis, and also that wild buck in the Luangwa Valley are acting as a reservoir of the virus of the disease. The second contribution is by Dr. H. B. Fantham, D.Sc., on Herpetomonas Pediculi, Parasitic in the Alimentary Tract of Pediculus Vestimenti, the Human Body Louse. This paper is illustrated by a coloured plate showing the various stages in the development of the parasite. This new species of herpetomonas seems to be restricted to the intestinal canal and fæces of the body louse. Dr. Fantham has followed the whole of its life-cycle in living material; it exhibits three typical stages in its life history—viz., the pre-flagellate, the flagellate, and the post-flagellate. The first of these is found in the œsophagus or proventriculus of the louse, and it strongly resembles the Leishman-Donovan body; the second, or flagellate, stage occurs chiefly in the mid-gut of the insect; and the third, or post-flagellate, the resting or encysted stage, is best observed in the rectum or fæces of the louse. The parasite is spread from louse to louse by the contaminative method, cysts passed by one louse being swallowed by other lice. There has been much controversy as to flagellates found in sanguinivorous insects being regarded as developmental stages of trypanosomes, but Dr. Fantham is of opinion that herpetomonas pediculi is a flagellate natural to, and parasitic in, the louse; he also says that it has no connexion with a human trypanosome, pathogenic or non-pathogenic, nor is it connected with leishmania. His reasons for this opinion are given in detail and are well worth careful consideration.

Gynæcological Nursing. By ARTHUR E. GILES, M.D., B.Sc. Lond., F.R.C.S.Edin., M.R.C.P. Lond., Surgeon to the Chelsea Hospital for Women; Gynæcologist to the Prince of Wales's Hospital, Tottenham. London: Baillière, Tindall, and Cox. 1912. Pp. 187. Price 3*s.* 6*d.* net.—Although, as Dr. Giles remarks in the preface to this little book, a number of such manuals are available for the use of nurses, yet it appeared to him that the scope of the lectures which for some years he has been giving to the nurses at the Tottenham Hospital was sufficiently different from the majority of these to justify his publishing this short manual. His aim has been to write a book for nurses and not for medical students, and in this he appears to have succeeded. A large amount of information is given, and unnecessary detail has been carefully avoided, with the exception, perhaps, of the section on extra-uterine gestation, in which there is a diagram that must be quite unintelligible even to the best trained nurse. The part of the book devoted to the preparation and after-treatment of operation cases is better than that concerned with gynæcological diseases, and the schedules of the after-treatment of patients at the Chelsea Hospital and the Tottenham Hospital are very interesting. The average nurse should learn much from reading this book, and we can recommend it to her as a safe guide.

Wheeler's Handbook of Medicine. Fourth edition. By WILLIAM R. JACK, B.Sc., M.D. Glasg., F.R.F.P.S. Glasg., Assistant Physician to the Western Infirmary of Glasgow. Edinburgh: E. and S. Livingstone. 1912. Pp. 532.—We reviewed the first edition of this book very favourably in THE LANCET of May 26th, 1894, and the second edition in our issue of July 25th, 1903. The advances that have taken place in the domain of medicine during the past few years have rendered necessary considerable additions. For instance, a section on intoxication has been supplied, and considerable attention is paid to tropical diseases in the present edition. A section on immunity, based on Muir and Ritchie's "Manual of Bacteriology," and a brief outline of vaccine treatment find a place at the very beginning of the book. We fail to find the now authorised name of Mediterranean fever substituted for that of Malta fever. The latter should now be bracketed beside it for identification purposes. An omission to which we called attention in reviewing the second edition still remains—viz., that no mention is made under aphasia of transitory attacks, such as are not uncommon in old persons suffering from anæmia. A disregard of this point may lead to needless alarm from a suspicion of cerebral mischief. Under appendicitis it is stated that immediate operation is now the accepted practice in all cases, and that medical treatment finds a place only where operation is refused, or in anticipation of an operation. The minute anatomy of the nervous system is elucidated with coloured diagrammatic illustrations. Those diseases concerning which there has been a great access of knowledge during the past decade are brought up to date judiciously and without overloading the book with views which are as yet speculative.

Lectures on Midwifery for Junior Students and Midwives. By A. B. CALDER, M.B. Edin., M.R.C.S. Eng., Lecturer on Midwifery to the London County Council. Second edition. London: Baillière, Tindall, and Cox. 1912. Pp. 268. Price 5*s.* net.—The author has rewritten and enlarged this book, a notice of the first edition of which appeared in THE LANCET of August 25th, 1906, and replaced the old illustrations by a new set on a larger scale, interpolating them in the text and not at the end of the chapters, as was done previously, an arrangement which, as we said at the time, was very inconvenient. The revision appears to have been well carried out, and the book contains all that need be known by an aspirant for the certificate of the Central Midwives Board. It is always a difficult matter in lecturing to midwives to strike a happy medium, and while telling them enough for their purpose, not to attempt to go too much into detail. This little book is an excellent example of what such a manual should be, and we have no doubt that the second edition will prove as useful and successful as the first. At the same time we hope that in any future edition Dr. Calder will supply legends for his figures. This will render them more useful and in some instances more intelligible. We must confess, for example, that we can

make nothing of Fig. 176a. It may be meant to represent over-distension of the uterus, but we are by no means sure.

A Nurse's Life in War and Peace. By E. C. LAURENCE, R.R.C. With a Preface by Sir FREDERICK TREVES, Bart., G.C.V.O., C.B., LL.D. London: Smith, Elder, and Co. 1912. Pp. 311. Price 5*s.* net.—Some time ago we had occasion to express our disgust at a novel that purported to describe the typical conditions of hospital work and the character and behaviour of nurses in England. Those who wish to glean some real information about these conditions may read with instruction and profit "A Nurse's Life in War and Peace," by Miss E. C. Laurence. The book opens with the schoolgirl's determination in 1888 to become a nurse, and describes in candid and unsophisticated style her progress from her admission as a probationer at a children's hospital in London in 1891, through her training and service at a London general hospital, and her experiences as travelling nurse with an invalid in Egypt, up to the time when she started to the front in 1900 for the South African war. The remainder of the book (pp. 137–311) is filled with an interesting account of her experiences in that campaign, from which it may be incidentally comprehended by lay people that many other things are necessary in the medical service during war than merely that a medical officer should be "a good doctor." As Sir Frederick Treves says in his preface to the book: "The novice who is entering the profession of nursing will find in these letters a sensible and exact view of the prospect that lies before her. She may further glean some insight as to the qualifications of the good nurse." Of these qualifications he writes: "She is versed in the elaborate ritual of her art, she has tact and sound judgment, she can give strength to the weak and confidence to the faint at heart, she has that rarest sight which can see the world through the patient's eyes, and she is possessed of those exquisite, intangible, most human sympathies which, in the fullest degree, belong alone to her sex." Such a character, in large measure at least, we seem to read in the author of this book.

New Zealand: The Country and the People. By MAX HERZ, M.D. With 81 illustrations and a map. London: T. Werner Laurie. 1912. Pp. 382. Price 12*s.* 6*d.* net.—This work was originally written by the author in his own language for German readers, and has since been translated by him, and, to use his own expression, "filed by his wife and Miss Rita Harris, and polished by several gentlemen friends in Auckland." It gives a tolerably readable account of New Zealand, dealing with its history, legendary and otherwise, as well as with its physical, social, and political aspects, from the point of view of an intelligent visitor without bias for or against the institutions of a British colony. It contains very little to mark it as the work of a medical man, and if this is to be regretted by medical readers it was apparently not in all instances the author's fault that he did not find more material. The observations of a German upon educational methods are always interesting. Dr. Herz finds that the method of instruction at the Medical School at Dunedin "would hardly suit a German," and gives his reasons, but his brief observations upon the status of the teaching staff, and generally of the honorary staffs of the public hospitals of New Zealand, appear to be more or less applicable to conditions which prevail in England no less than in the colony, and the questions raised are too large to be dealt with in one or two pages of a traveller's impressions. Dr. Herz is more interesting in the picture that he draws of labour and labour legislation in the island, and in several of his chapters, which are copiously illustrated, he has a good deal to say as to the Maori population. We note with some interest that if the forty-seventh proposition of the First Book of Euclid is not included in the Maori educational curriculum, the Maori, when building his house, finds a right angle by the same process that some of us, including well-educated lawn-tennis players when laying out a court, use for the like purpose. Dr. Herz, however, makes a slight slip in his account of it, possibly due to a misprint. The sides of the triangle that is to contain the desired right angle must be in the proportion of 3, 4, and 5, not of 3, 4, and 7. The square, that he rightly gives as 25, will then be obtained.

MISCELLANEOUS VOLUMES.

THE Insurance Act continues to be the spirit that troubles the waters of the fount of healing, and pamphlets, polemical, explanatory, and apologetic, appear in rapid succession. *The Doctors and the Insurance Act* (London: Thomas Griffiths and Co. 1912. Pp. 82. Price 3*d.* net), by J. DYER BRAY, is remarkable because of its clarity of thought and expression, because of its accurate reasoning, and because of its unusual comprehension of the spirit and principles upon which the objection of the profession to the Act as it stands is based, by one who is not a medical man, but who certainly justifies his claim "both to know what medical men think on the subject, and to form a detached and disinterested judgment of the case put forward by them." The absence of political bias is vouched for by the author's statement that he "has belonged by family traditions, by life-long association, as well as by personal conviction, to the party of which the author of the Insurance Act is so prominent a member." The thesis that Mr. Bray addresses himself to sustain is that the medical opposition to the Act is not selfish, and that its grounds are just. This point he establishes by a consideration of the development and passage of the Bill and of the medical provisions of the Act; by an explanation and justification of the six cardinal points; by a discussion of the medical provisions of the Act considered in the light of the six cardinal points; and by an examination of the peril of the voluntary hospitals under the Act. He concludes with a clear-cut statement of how the matter stands now.—A thoughtful attempt to arrive at a basis for the working of medical benefit under the Insurance Act is given in *How the Insurance Act could be Worked by the Doctors* (Southall: The Devon Press. 1912. Pp. 10. Price 2*d.*), by H. PRIEST SHANKS, L.S.A. He estimates in detail how much work the medical man can do from an analysis of his working day, and draws the conclusion that 1000 *picked* lives will entail all the work that the doctor can do properly in an average working day of 11 hours' duty with nine hours' actual work. He then estimates how large an income the doctor requires to pay his working expenses, his living expenses on a moderate scale, to repay the capital spent in his education and establishment, and enable him to put enough by to purchase an annuity of £350 a year from the age of 65. This sum he finds to be a minimum of £500 a year for 35 years, which on a basis of 1000 club patients (picked lives) means 10*s.* a year each. The bad lives, he considers, cannot be contracted for until actuarial figures are available, and must be accepted on a system of payment according to actual work done. He limits his deductions to town practice, leaving it for the country practitioner to adapt his method of estimating to the varying conditions of country practice.—In *The Insurance Act and Yourself* (London: Thomas Murby and Co. 1912. Pp. 109. Price 6*d.* net), by HORACE B. SAMUEL, M.A., Barrister-at-Law, we have both an explanation and an apologia. Inasmuch, however, as its argument—with the exception of one paragraph pooh-poohing the fears of hospital authorities who are "panic-stricken by the Act," and one or two places in which insistence is made on the tender consideration shown in the Act for the interests

of the doctors—does not concern the relations of the Act to the medical profession, this is not the place for a criticism of it.——The searching inquiries by hospital managers as to the way in which hospitals will be affected by the Insurance Act have resulted in calling the attention of the public to the undoubted debt which the community owes to its charitable institutions. Public charity has had much to do with the development of hospital work, but, on the other hand, that work would never have been possible but for the self-sacrificing labours of those who carry out the administration and treatment. In the *Hospitals of Wales*, an interesting summary of the charitable work of hospitals in the Principality, by G. ARBOUR STEPHENS, M.D. Lond. (Swansea: Victoria Printing Works. Pp. 64), the author seems to put forth a plea for the rate-support of the voluntary hospitals of Wales, but whether we have reached the stage when such a drastic change should be made is extremely doubtful.

JOURNALS AND MAGAZINES.

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., Professor ALEX. MACALISTER, Professor ARTHUR THOMSON, Professor ARTHUR KEITH, and Professor ARTHUR ROBINSON. Vol. XLVI. Third Series, Vol. VII., Part III. April, 1912. London: Charles Griffin and Co. Published quarterly at 6*s.*; annual subscription 21*s.*, post free.—Of normal anatomy there is but little in the present number of the *Journal of Anatomy and Physiology*, the bulk of the papers being devoted to the description of anomalous conditions, some of practical importance, some of mere academic interest. Professor J. Symington contributes a paper entitled "Further Observations on the Rectum and Anal Canal," in which he dissents somewhat from the work of recent years. Twenty-four years have passed since Professor Symington wrote his classical paper on the same subject, and the fame of that early paper is in no danger of being eclipsed by his more recent contribution, for in some ways the present work falls short of the very high standard set in the original one. Without venturing too far into the discussion of this subject, it may be said that the last word in connexion with the rectum must rest between the rectal surgeon and the embryologist, for it matters not at all how many subjects have been examined in the dissecting room; the normal is to be gauged only by examinations of the living condition and the development of the part. Dr. Douglas G. Reid contributes Notes on the Folds of Peritoneum connected to the Appendix, and a Cæco-Appendicular Fold, this cæco-appendicular fold being a mesenteric fold which lies anterior to both the "bloodless fold" and the meso-appendix. Dr. F. Wood Jones has opened up a field of some probable utility to the surgeon in his paper on the Grooves on the Ossa Parietalia, since he seems to have demonstrated that these grooves are in reality caused by meningeal venous sinuses, and not so much by the branches of the middle meningeal artery, which appears to be rather a smaller channel than is usually imagined. The tunnel at the pterion also is said to be caused by a venous channel running to the spheno-parietal sinus, although it likewise lodges a branch of the artery as well. From the point of view of the anatomist the changed ideas would seem to be well substantiated; it remains to be demonstrated how far surgical experience endorses these views. The historical account of the evolution of ideas concerning these grooves is of special interest, since it appears that their venous origin was for long accepted generally, both by surgeons and anatomists. Professor Arthur Keith describes and illustrates Six Specimens of Abnormal Heart. These specimens have been recently added to the collection of the Royal College of Surgeons of England, and they illustrate many points of clinical and embryological importance. Mr. T. Wingate Todd discusses Cervical Rib in a very detailed manner, and gives a description of the anatomical condition encountered in four examples of this anomaly from the dissecting-room of the University of Manchester. The literature of cervical ribs has now grown to such proportions, and the main conclusions appear to be so definitely agreed upon, that this summing up of the knowledge of the anatomical condition is very welcome. In this study it may be said that the anatomist has led the way, the clinical observer has added his knowledge; and now it is to be hoped that the radiographer will fall into line and help to extend knowledge by recording on his plate, not merely the bony condition present at the site of anomaly, but also the exact position in the vertebral series of the anomalous vertebra. Mr. J. Hammond describes a case of Hermaphroditism in the Pig. The animal appears to have been female, as far as the bulk of the accessory organs was concerned, but male accessory organs were also developed; the genital gland was male, and what at first sight appeared to be an ovary turned out on microscopical examination to be a mass of lymphatic tissue. Dr. W. M. Mills deals with a Case of Supernumerary Kidney, in which upon the left side of a dissecting-room subject two kidneys and two ureters were present. The paper is illustrated by admirable photographs of the condition described. Dr. Reginald J. Gladstone discusses a Case of Left Inferior Vena Cava, and Dr. W. L. H. Duckworth describes a skull of an Ashanti which, for tribal reasons, has had the upper incisors extracted.

The Quarterly Journal of Medicine. Edited by WILLIAM OSLER, J. ROSE BRADFORD, A. E. GARROD, R. HUTCHISON, H. D. ROLLESTON, and W. HALE WHITE. Vol. V. No. 19. April, 1912. Oxford: At the Clarendon Press. Subscription price 25*s.* per annum; single numbers 8*s.* 6*d.* each.—The contents of this number are:—1. The Association between Mitral Stenosis and Renal Fibrosis, by John Cowan and Geoffrey B. Fleming. They find that the blood pressure in mitral stenosis is often normal or subnormal, but even more often it is above the average. The persistence of high blood pressure in the absence of œdema strongly suggests the presence of renal fibrosis. They think that there is little doubt that the frequent association of mitral stenosis and renal fibrosis is not accidental, but that the relationship between the two is not invariably the same. 2. Triple Rhythm of the Heart due to Ventricular Extra-Systoles, by G. B. Fleming. Tracings from two cases showing regularly recurring ventricular extra-systoles are discussed, and it is suggested that the rhythmical production of stimuli at an abnormally irritable point in the ventricles may produce such rhythmical irregularities. 3. A Note on the Diagnosis of Sinus Arrhythmia, by J. Davenport Windle. The irregularity of the heart occurring in children after acute illness is discussed, and the fact that it is usually due to sinus arrhythmia is emphasised. Tracings are shown illustrating possible fallacies in interpretation. 4. The Origin of Premature Contractions, by Thomas Lewis and M. D. Silberberg. They state that the electric curves of premature contractions obtained in repeated examinations of the same patient show a remarkable constancy of outline, which they regard as evidence of the constancy and limitation of the focus in which they are produced. 5. Blood Pressure Variations Associated with Lumbar Puncture and the Induction of Spinal Anæsthesia, by H. Tyrrell Gray and Leonard Parsons. Among other interesting results they have found that in lumbar puncture the puncture of the skin is accompanied by a rise in blood pressure, which varies in extent with the degree of consciousness, the pain, and the disturbance produced by the operation, but which is not accounted for entirely by these factors. Puncture of the dura mater causes a much larger rise, which is due to a definite

effect on the vaso-motor centre. Withdrawal of cerebro-spinal fluid tends to lower the blood pressure, but the net result of lumbar puncture is to raise it for at least 20 minutes afterwards. The blood pressure variations in high and low spinal anæsthesia are also described and discussed. 6. Œdema of the Orbital Tissues, by John Hill Abram. Two cases are described, one of which was due to actinomycosis. 7. Remarks on Syphilitic Pseudo-tabes, with the Record of a Case, by W. B. Warrington. The case presented symptoms strongly suggesting tabes as the diagnosis, but pathologically the lesions were widely spread meningitis and vascular disease, both due to syphilis. Other cases of similar character are on record, and the possibility that syphilitic lesions may cause symptoms very like those of tabes is recognised, hence the name syphilitic pseudo-tabes. The distinctive characters from the points of view of diagnosis and treatment are discussed. 8. Sinus Arrhythmia of High Grade induced by Digitalin, by E. E. Laslett. Three cases are described, and tracings are given and discussed. 9. Auricular Fibrillation Associated with a High Degree of *A.-V.* Block and Paroxysmal Tachycardia, by C. E. Lea. A case is recorded which ended fatally. Tracings are given and their significance is analysed. 10. Congenital Occlusion of the Duodenum, by E. Marshall Cowell. A brief historical account of the condition is given, a case is carefully recorded, and an analysis of recorded cases with a bibliography is appended.

New Inventions.

THERMOS SALINE INFUSION APPARATUS.

THIS apparatus consists of a vacuum flask, a syphon, a water gauge, and a two-way tap. The vacuum flask is of the ordinary thermos pattern and holds either one or two pints. The syphon has two limbs, one a rubber tube reaching to the bottom of the flask, the other of plated copper, reaching down outside to a point below the flask and terminating in the tap. Parallel with the syphon tube and connected with its lower end above the tap is a water gauge of glass tube protected by a metal guard. This gauge carries above a rubber ball used for filling the syphon. The flask stands upright in a small tray and may easily be detached. It is closed by a cap which may be removed for re-filling without disturbing the syphon. The method of use is as follows. The flask is filled with hot saline, the syphon, &c., being already attached. The tap is closed. The rubber ball is compressed, a small hole below it is closed by the finger, and the ball is released. A rush of fluid follows round the syphon and up the gauge and the apparatus is ready for use. The flask is hung by means of the chain from any convenient support above the patient's bed and the needles for subcutaneous infusion or the rectal tube are connected by rubber tube with a nozzle below the tap. The rate of flow is regulated by the tap and observed on the gauge. Should it be desired to discontinue the flow for a short time the tap is closed, and before re-starting the syphon is emptied of its now cold contents by the side nozzle on the two-way tap. The temperature at which the saline should be poured into the flask will, of course, depend upon the rate of flow, the length of tube exposed, and the temperature of delivery required. It is found that if the saline in the flask is at 125° F., the rate of flow one pint per hour and one foot of rubber tube is exposed, the temperature of delivery is about 105° in a room at 60°. At a rate of half a pint per hour, the initial temperature should be 130°. These figures are only approximate, but are sufficiently accurate for all practical purposes. The temperature of the saline in the flask is almost constant, falling about 1° per hour.

If, then, the flow remains constant the temperature of delivery will be unaltered so long as the apparatus is not disturbed. For subcutaneous infusion it is essential that the apparatus should be sterilised. This is readily accomplished by filling the flask with boiling water and running this out through the tubes in the ordinary way. The needles should be separately boiled.

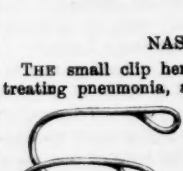
The advantages of this apparatus are its extreme simplicity, both in construction and action, its absolute reliability, and the fact that it can be readily sterilised. The flask being upright there is no risk of leakage and no danger of breaking the glass lining by inserting a stopper. The whole apparatus can be in action within five minutes of the moment when it is requested and it requires no further attention. A remarkable feature is the large quantity of saline absorbed by this method. Owing to its constant high temperature it is taken up at once into the vessels, there is rarely any swelling of the legs or return by rectum, shock is successfully combated, and renal excretion is increased. At the London Hospital we constantly give five pints subcutaneously by this method in as many hours, and occasionally twice that amount, with no result whatever other than a very remarkable improvement in the patient's condition. In critical cases we use temperatures higher than those mentioned with striking success. Any excess of fluid given is at once balanced by its rapid excretion—in marked contrast to the water-logged subcutaneous tissues so often resulting from the older methods where the temperature of delivery too often was merely that of the atmosphere.

The apparatus has been constructed to my design by Messrs. Allen and Hanburys, of Wigmore-street, London, W.

Devonshire-place, W. H. S. SOUTTAR, F.R.C.S. Eng.

NASAL DILATING CLIP.

THE small clip here figured I have found useful when treating pneumonia, as well as in other cases in which a free entry of air is necessary. It saves all the laborious working of the levator alæ nasi muscles. It would also be of service during the administration of an anæsthetic when the nostril is small. The two small loops are inserted into the nostrils and gently worked into position, the bend adjusts itself over the tip of the nose, and remains in place.



The instrument, which is simple and inexpensive, can be made in various sizes. The makers are Messrs. S. Maw and Sons, Aldersgate-street, London, E.C.

Pinxton. H. J. L. BULLEN, M.R.C.S. Eng.

THE THIRD INTERNATIONAL MEDICAL CONGRESS OF LABOUR ACCIDENTS.—The Third International Medical Congress of Labour Accidents will be held in Düsseldorf from August 6th to 10th. As the Great Exhibition of Cities there will then be open the members will have the opportunity of inspecting also its medical section, in which will be given a display of matters relating to modern hospital organisation and the special services for the victims of labour accidents. The report of the investigation decided on at the last congress, held in Rome, will be submitted, and the following subjects will also receive attention:—The comparative state of the Compensation Acts in force in different countries, and the subject of insurance against occupational diseases; the importance of early functional treatment; vascular diseases and accidents; arthritis deformans and accidents; influence of accidents on cancerous diseases; the examination of injured persons, especially in respect of measurements, the formation of callosities, and the comparison between right-handed and left-handed persons. Traumatic neuroses and hernias will be excluded. Questions relating to eye and ear diseases, except in so far as they may be included under one of the preceding headings, will be discussed separately on the last day of the Congress. The secretary-general is Professor Dr. Siniger, Landeshaus, Düsseldorf. There will be the usual receptions and excursions and a banquet on the 8th, to which ladies will be admitted. The membership fee is 20 marks (£1).

THE LANCET.

LONDON: SATURDAY, JUNE 1, 1912.

The Present Treatment of Aneurysm.

AT a time not yet very far distant the treatment of aneurysm was a matter of great importance; it was a subject on which many papers were written and which was often discussed; but at the present time the disease attracts much less notice, and of it much less is heard. For this there may be several reasons; the disease is certainly far less common than formerly. This is one reason, and now the scope of surgery has widened so greatly that many other matters have attracted much of the notice that was formerly devoted to the treatment of aneurysm. Yet it was a happy thought to arrange a discussion on this subject recently in the Surgical Section of the Royal Society of Medicine. That aneurysms of all kinds are less often seen nowadays than formerly there appears little doubt, but it seems to be clear that the aneurysms which have most decreased in number are those which may be more particularly called surgical, such as aneurysm of the popliteal artery, while the diminution in the number of aneurysms of the large vessels of the thorax and abdomen is much less marked. In the discussion at the Royal Society of Medicine all forms of aneurysm were considered in which surgical treatment could be applied, but it is not unlikely that the discussion would have been more interesting if it had been limited to one or other of the groups of aneurysms; either would have given ample material for a valuable discussion. Nevertheless, in spite of the fact that two essentially different matters were discussed, much that was of interest came out.

With regard to the treatment of popliteal aneurysm several speakers expressed the opinion that the Hunterian operation was very satisfactory, and that no other method gave better results. The operation does undoubtedly give very good results if it is employed only in cases really suited for it; the real danger nowadays is the risk of gangrene, and therefore it should not be employed in any case where there is any indication that the circulation of the limb is already compromised. It is curious that no surgeon advocated excision of the sac, which is only a further extension of the old operation of Antyllus, who tied the artery on both sides of the aneurysm. Mr. GILBERT BARLING, who opened the debate, and whose paper appeared in THE LANCET of last week, spoke strongly in favour of Matas's obliteration operation, for which the somewhat uncouth title of "endoaneurysmorrhaphy" has been coined. At present it is necessary to use this lengthy title or to call it the "obliteration operation," for MATAS has devised and employed two other operative methods of dealing with aneurysms. In this operation the aneurysm is opened and the vessels entering and leaving it are closed by means of sutures, and the cavity of the sac is obliterated by sutures. The special advantages of the operation are said to be that the vasa vasorum are less likely to be damaged than by a ligature, that the main vein is less likely to be injured than by proximal ligature or excision, and that the collateral circulation is less likely to be disturbed. Mr. BARLING had collected details of 14 cases of aneurysm treated by the obliterative method: one of these died from sepsis; gangrene followed in three other cases, but all three recovered after amputation. The American results appear to be more favourable than these, but it is early yet in the operation for a definite opinion to be formed of its value as compared with other methods. It is clear that it deserves trial and that it is not difficult to perform. For the treatment of aneurysms not amenable to ordinary surgical procedures, such as aneurysms of the aorta, the main point discussed was the value of the wire treatment. Mr. D'ARCY POWER presented some statistics of the results obtained, and he demonstrated COLT'S apparatus by means of which a cage of fine wire can be inserted in an aneurysm; and some results were mentioned. COLT'S method appears to be decidedly superior to the older method of introducing a wire, and some successful cases have been reported, but it is not yet possible to say with any certainty which is the best method of dealing surgically with internal aneurysms. We were glad to hear Mr. BARLING refer to the immense difference which had been made in the treatment of aneurysm by the introduction of LISTER'S methods; by antiseptic surgery four-fifths of the danger of operative procedures have been removed, and thus it is possible to carry out many operations which would have been absolutely impossible before. That within recent years several new processes for dealing with aneurysm have been introduced is clear, but their ultimate position has not yet been settled. It is not improbable that aneurysms will continue to diminish in frequency, and, if so, the problem will lose some of its importance, but the general advance in surgical methods has put into our hands weapons which we did not formerly possess.

Spiritualism and Reason.

IT has been frequently observed that epochs marked by a weakening of dogmatic belief in religion are very often characterised also by a luxuriant growth of the manifestations of an extravagant credulity in speculations about the supernatural. It is very much as if some tendency, which in times of a different intellectual character finds its natural channel in the tenets of the organised creeds, is released from restraint when these doctrinal embankments break down, and will then, in minds of an inferior order, flow over into crude forms of superstition. Evidences of a psychological atavism of this sort abound at the present time, and it may perhaps be questioned whether their growth has not been unwittingly fostered by the reaction which has set in within recent years against the aggressive agnosticism of an earlier generation of scientists. The more tolerant attitude towards spiritual problems which has replaced the iconoclastic temper of the scientific world in the Victorian era, admirable as it is in

itself, has probably contributed in some measure to make opinion less critical than it should be in regard to the claims of those charlatans who, trading on the identity of name, use the repute of spiritualism as a philosophic doctrine to recommend that other spiritualism which for the most part is nothing better than an impious fraud. However that may be, it is certainly well that, as a corrective to what might easily become a dangerous leniency towards the extravagances of the quack and the fanatic, there should come from time to time a reminder of the requirements of scientific reason in dealing with the theories and the assertions of those who pretend to an esoteric knowledge of spiritual existence. And this timely service has been admirably rendered by Dr. T. CLAYE SHAW in the Harveian lecture which he delivered recently on the Material Obligations of Spiritualism and Allied Phenomena.

Dr. CLAYE SHAWE, with his usual humour and lucidity, pointed out to the devotees of psychical research some of the difficulties that lie in the way of interpreting in accordance with spiritualist theory the manifestations by which these investigators claim to have been favoured. Taking the spiritualist idea as it is commonly held, he invited the seers of spooks to consider the obligations of that idea, and the deductions that may legitimately be drawn from it. When, for instance, it is asserted that a ghost has appeared, it must be admitted that this ghost, as it is capable of acting on the sense organs of the spectator, is itself material, however attenuated its form. Therefore, if it was previously spiritual in nature, the process of materialising must involve some sort of expenditure, some diminution of the spiritual essence, so that when the ghost appears the spirit of the individual is *pro tanto* replaced by it. And what of the ghost's clothes? Dr. CLAYE SHAW suggests that this sartorial difficulty can hardly be overcome save by accepting the doctrines of the Hylozoists, who maintain that there may be a low form of consciousness in inanimate matter. Probably, however, this theory would be less repugnant than he supposes to thorough-going spiritualists, who, if we may judge by a recent case before the criminal courts, are quite prepared not only to admit that clothes may have a spiritual life but will even extend the same privilege to a dressmaker's catalogue. Similarly, in dealing with the favourite instance of the spectral skeleton, Dr. CLAYE SHAW would have the spiritualist recognise that his theories leave him only the choice between two alternatives—either he must admit that the appearance is due to such a dynamic change of the immaterial into the material that when the spectre appears the spirit disappears, or he must maintain that the phenomenon is dependent on a revivification of previously live matter through the agency of the spirit, in which latter case it rests with him to show that there has been a corresponding disappearance and reappearance of the material bones. The conception of telepathic communication is equally untenable as involving the notion that inferior matter in the brain of the dominant thinker can compel the higher spiritual force to act as a messenger to another brain at a distance. And even more refined forms of spiritualistic theory do not entirely evade these difficulties which contitute a *reductio ad absurdum* in the cruder and grosser varieties of the creed. Take, for instance, a view which has latterly been put forward with some show of authority—the view that "mind represents a force acting from without upon what is still no more than matter involved in active chemical and physical states." Have its advocates fully grasped what are the implications of such a view? If the body and brain are mere instruments on which mind plays as the wind plays on the Æolian harp, then its good or bad manifestations are but the results of the sound or faulty condition of the instrument, and we are again admitting the control of matter over spirit. In short, Dr. CLAYE SHAW'S quarrel with spiritualism in all its forms is really that it is too materialist, or rather, perhaps, that it fails to recognise how materialist it is and must be, and that it omits accordingly to draw the inevitable conclusion that for practical purposes the best course for the spiritualist, as for the materialist, is to attend to what he can certainly act upon—namely, the body.

These arguments, though they may not touch the position of the mystic, are certainly valid against the spiritualist who looks for his evidence in anomalous manifestations of supernatural force in the physical world; and their cogency, indeed, is such that it is almost a matter of surprise that views so incongruous as are the doctrines ordinarily held by frequenters of spiritualistic séances should have such remarkable vitality. In psychology, of course, the mental processes that lead to error may, considered simply as phenomena for investigation, be no less valuable than the reasoning that leads to truth, and from this point of view the fallacies of the spiritualist, although, or rather because, they are so glaring, may possibly prove most instructive. This, at all events, is the opinion of Dr. CLAYE SHAW, who finds in the extravagances of spiritualism an illustration of the wide influence on our views of life of that external projection of mind or thought which is apparently a fundamental tendency of our consciousness. Although presentations, feelings, and ideas are really within us—really, that is, in their actual material seat of resistance—yet we do not recognise them where they occur but only as outside ourselves. This eccentric projection of mind is a factor which must certainly be taken into consideration in estimating the validity of reported demonstrations from the occult.

The National Insurance Act.

THE position of the medical profession in relation to the National Insurance Act must remain critical for some time to come. The Advisory Committee, with its medical representation of 33 members, is now endeavouring to help the Insurance Commissioners to prepare satisfactory regulations for the administration of the Act. With the exception of the introductory speech by the Chancellor of the Exchequer, the proceedings have been private, and the only official announcement has been that made by Mr. MASTERMAN, who, in replying to a debate in the House of Commons on May 22nd, before the adjournment for the Whitsuntide recess, said that the negotiations between the representatives of the medical profession on the Advisory Committee and the Insurance Commissioners were proceeding most amicably. That may

mean anything; but those who have closely followed matters during the past year may well doubt whether the Financial Secretary to the Treasury's assurance really means that regulations satisfactory to the medical profession are in course of preparation. The demands of the medical profession, so far as broad principles are concerned, have now for some time been clear and definite, and they have been formulated and laid before the Government and the Insurance Commissioners. It is true that the thorny question of the method of remuneration, whether by contract or by payment for work done, has not been settled, but this division of opinion has not stood in the way of unity in purpose and action. There are growing signs that medical men will not coöperate in administering medical benefit under the Insurance Act unless their demands are conceded in letter and in spirit. To many medical men the word "strike" as applied to concerted defensive action on the part of a liberal and enlightened profession has a peculiarly unpleasant ring. But facts must be faced, and the new form of undertaking proposed by the British Medical Association, whose terms were prematurely published a month ago, has been made the most of in the lay press and has been freely described by political newspapers as the organisation for a "doctors' strike." Party organs of one colour have given delighted accounts of the preparations for the "great doctors' strike," while their political rivals have lectured the profession for dragging its honour in the mud by imitating the worst features of trades unionism. All this is bad for medicine and bad for the public, but however badly things may go there will not be a strike of the medical profession—they will not lay down their tools. They may refuse in certain circumstances to contract with insurance committees or approved societies for attendance upon insured persons, but they will not cease to attend upon equitable terms those who need their services.

It is unfortunate that the present time, when the profession of medicine is banding itself together to remedy past abuses and to safeguard the public and itself for the future, should be one of general unrest and upheaval, when class is being set against class and social feeling runs high. But the medical profession had no share in the introduction of the National Insurance scheme, and cannot be held responsible either for its form or for its social and political surroundings. Nevertheless, it is most important that the terms which medical men are asking for, however just and temperate they may seem to themselves, should be so framed and expounded that no section of the public may be able to say that the profession has merely seized the opportunity to stand out for all they can get. We and our readers know that this is untrue; but there are others whose voices reach the public ear who insist for one reason or another that the medical profession is acting on political motives, or is bent on plunder. Such insinuations cannot be ignored: it is all important that the profession in standing up for its rights and for the public weal should not be misunderstood by the public. There must be no antagonism between medical men and their patients on this matter: their interests are not opposed, but are identical. Nothing could be more misleading than the assertion in a political organ that "from the beginning of the controversy the question which has absorbed them (the medical profession), to the exclusion of every other, is that of fees." Our readers should take every opportunity of pointing out to their lay friends the injustice of this view.

Annotations.

"Ne quid nimis."

THE NOTIFICATION OF INFECTIVE DISEASES.

IT can scarcely be denied that the conditions now prevailing as to the notification of infective diseases are illogical, and to a large extent unsatisfactory. We find that an endemic disease, such as tuberculosis, where person-to-person infection is but one of many causes at work, is universally notifiable. Epidemic diseases of relatively rare occurrence, such as epidemic cerebro-spinal meningitis or poliomyelitis, are included in this list with enteric fever, scarlet fever, and so forth, only in the London area and in an entirely fortuitous collection of sanitary districts up and down the country. In the case of measles and whooping-cough, on the other hand, no information need be sent to the medical officer of health anywhere, and he is therefore unable to obtain accurate information as to the prevalence of these conditions in his district. Nor are the diseases notifiable invariably more dangerous than those omitted. Thus it has been pointed out by more than one observer that the mortality due to measles is considerably greater than that caused by scarlet fever, which has tended in recent years to take a mild type, and the suggestion has been made that "the fever," as it is commonly called among the poorer classes, should not continue to receive the special dignity of isolation now accorded to it. In a paper read before the Section of State Medicine in the Royal Academy of Medicine in Ireland[1] Sir John Moore reviews the existing state of affairs in that country, which is practically the same as that in England and Wales, and quotes passages from the report of the Registrar-General for Ireland bearing on the matter. It is certainly unfortunate that measles, which is responsible for a very large mortality among children in the first few years of life, should continue to be regarded as a necessary evil of childhood against which precautions are useless; and the mere fact of notification might do something to increase the importance attached to the disease. Further, even if it be impossible in times of serious epidemic to isolate all or most of the sufferers, yet it might not unduly tax the resources of the country to find accommodation for many of the cases occurring at ordinary times. In this way it might even be hoped that some epidemics might be checked in their initial stages. In this connexion we may mention the recent Order of the Local Government Board enabling the Metropolitan Asylums Board to receive certain cases of measles or whooping-cough. But apart altogether from the question of isolation there is much to be said for making all infective diseases notifiable, for the information of the public health authority. Increased knowledge would thus be obtained as to the prevalence of such affections as epidemic diarrhœa, influenza, measles, and so forth, as well as of acute

[1] THE LANCET, May 18th, 1912, p. 1341.

pneumonia, which remains one of the most fatal of all infective diseases. Since tuberculosis has been made notifiable it is clear that the public must be regarded as used to the idea of the violation of medical confidence involved, and that there need be less hesitation in extending the sphere of notification to other affections. We hope that the question of such extension throughout the whole country, and apart from local predilections, may not be lost sight of by the medical advisers of the Government. From an article in another column it will be seen that this plan is already being adopted in the new public health legislation of Canada.

DIETARY REFORM IN SECONDARY SCHOOLS.

UNDER the auspices of the National Food Reform Association a conference has lately been held at the Mansion House, at which various speakers of acknowledged experience and authority gave expression to the feeling that our existing methods of school dieting are in need of considerable modification. Probably no one has a better right to speak on the subject than Dr. Clement Dukes, of Rugby; he laid down that there are two supreme demands in the feeding of boys and girls at school—adequate knowledge on the part of the caterer and personal supervision of details both in the kitchen and in the dining hall. He mentioned that one headmaster's wife whom he knew invariably walked about the dining hall where over 100 boys dined, personally saw that every boy was properly served, and learned the reason by inquiry why any boy failed to eat. We can imagine that this practice may have furnished a strong stimulus to appetite, or at any rate to consumption of food; undoubtedly such constant supervision would ensure satisfactory cooking and serving of meals. It is failings in these respects rather than in the amount and character of the food itself that Dr. Dukes considers require most attention. He lays down as two fundamental rules that during youth a larger quantity of all kinds of food is demanded than at any other time of life, and that a relative excess of proteids is imperative if the highest condition of growth and development is to be attained. Three meat meals, however, are not required, the evening supper being preferably of a lighter character. We notice that not only Dr. Dukes but other speakers also recommend oatmeal porridge as an ideal food. So much is said nowadays as to the necessity for taking food that requires considerable mastication that a soft food like porridge is often condemned. Dr. A. A. Mumford, of Manchester, recommends a crust with the porridge, but believes that the danger to boys from insufficient food is greater than that from non-masticated food. Mr. Prosser, a headmaster who has given great personal attention to school dietetics, also considers porridge a very good food if properly made. Dr. Dukes maintains that, in spite of asseverations to the contrary, boys and girls do care for puddings, sweet things being the most palatable of all the foods they eat. We should hardly have thought this needed emphasising, but with the increased pace of the present day it is not unlikely that this taste will diminish, and in time the sight that did Thackeray's heart good to see—a man of 40 eating a jam tart with relish—will indeed be a rarity. We are glad to find Dr. Dukes upholding sugar as a physiological necessity in youth, and, being more digestible, as preferable to fat; this is in accordance with the natural tastes of children. He emphatically condemns tea as the most frequent cause of indigestion in the young, especially when it is made too strong and allowed to stand too long. Miss Robertson, of Hertford, also recommends porridge for breakfast, though admitting that it is unpopular in England; her two recommendations, that the tuck shop should not be accessible before meals and that rejection of good plain food should be met by the docking of extraneous supplies, appear to be extremely sensible. The two essentials for improvement at the present time are, in her opinion, better education of the cooks and fuller discussion of the subject in all its branches. Dr. Mumford regards the midday meal, when the interval is short, to be "of the nature of a refreshment more than a full-sized meal"; and he makes no mention of meat as forming a part of it. We imagine that most parents as well as children regard the mid-day meal (at school) as the chief meal of the day—a late dinner is not the ideal arrangement for the young for many and obvious reasons. Mr. Prosser is a Norfolk headmaster of considerable experience, who carries out Dr. Sim Wallace's advice of ending meals with a crust to clean the teeth; he has a large garden and makes full use of vegetables and fruit; he also uses cheese and nuts in accordance with the latest vogue, and states that these dishes are popular. Eating between meals is prohibited, and as the school is in the country we presume the prohibition is effectual: *crustula desunt*. Dr. Sim Wallace's address on the main lines of reform in feeding at public, secondary, and private schools contained some statements that seemed designed to excite criticism. He considers the dietary at these schools to be not at fault "except perhaps for its being too highly nutritious," and, further, he adds that the digestibility and absorbability of the food supplied leave little room for improvement. He divides foods into the cleansing and the non-cleansing kinds, in regard to their effect on the teeth and mouth. The latter (farinaceous and sugary food in general, without a fibrous element) should not be eaten except when followed by food of a cleansing kind (fish, meat, uncooked vegetables and fruit, stale bread, liquids, &c.). He particularly recommends raw fruit as a termination for a meal, with which opinion everyone will agree. The difficulty, of course, lies in the application. The headmaster of Abbotsholme, Derbyshire, Dr. Cecil Reddie, gave an interesting account of the hygienic condition, and particularly of the attention that is paid to health matters in the curriculum at this school. This conference on diet in schools has done good in stimulating public interest in the subject. We believe that schools are far better managed in this regard than was the case a few years ago. But much still remains to be done in the education of parents and teachers in the principles of dietetics; in the exposure of fallacies as to food that may be in fashion for the moment; and perhaps most of all in the bringing of "experts" together, so that there may be free discussion, and the public may become acquainted with the two (or more) sides of the question, in regard to the various reforms that may be suggested.

A DELICATE METHOD OF OBTAINING HÆMIN CRYSTALS FROM MINUTE BLOODSTAINS.

A TEST for blood, first described by Teichmann in 1855, is the production of hæmin crystals by heating the suspected substance with glacial acetic acid. If the material is abundant there is no difficulty, and large and characteristic crystals are readily formed. But glacial acetic acid when heated has a tendency to evaporate with explosive violence, with consequent loss of the crystals if the amount of material is small. In the *Boston Medical and Surgical Journal* of April 11th Dr. W. F. Whitney has described a new method which appears to have advantages. He sought for a solvent a drop of which would evaporate from the periphery toward the centre, thus concentrating the solution. He found this in formic acid of specific gravity 1·2. If a drop of this acid is placed on a glass slide and allowed to evaporate at the temperature of the air,

or after gentle heating, it will disappear gradually from the periphery to the centre. On the other hand, a drop of glacial acetic acid does not hold together, but spreads over the slide and evaporates instantly. With these facts in mind Dr. Whitney worked out the following method. A minute fragment of the suspected substance—a scraping from a stain or a bit of stained fibre—is placed on a slide and a small drop of formic acid of specific gravity 1·2 is applied with a glass rod. Over the drop is inverted a small watch glass, which should not touch it or project beyond the edge of the slide. Gentle heat is applied beneath the drop, and the moment condensation is seen inside the watch-glass the heat is discontinued, the watch-glass is removed, and the remainder of the fluid is allowed to evaporate in air. When dry the spot can be examined microscopically and mounted in Canada balsam. The crystals are very small, requiring a high power objective to see them well, but they are so numerous that they cannot be overlooked. A second application of acid does not seem to make them any larger. The fact that they are so small shows that only a minute quantity of blood is necessary for their formation. The addition of a little hydrobromic acid (34 per cent.) in the proportion of one drop to 4 cubic centimetres of the formic acid gives darker and more numerous crystals than formic acid alone. The delicacy of the test is so great that crystals have been obtained occasionally from a small drop of a mixture of blood with 200 times as much water, while from a mixture of 1 to 50 they can always be obtained. Further, the ease and rapidity with which this test can be performed is an advantage. It can be directly applied to the suspected substance, and the whole procedure takes less than a minute.

THE WORK OF THE PHARMACEUTICAL SOCIETY.

OF the various statutory duties of the Pharmaceutical Society none is more important from the public point of view than the administration of the penal clauses of the Pharmacy Acts, and some interesting details of this and other departments of the society's work were given at its seventy-first annual meeting held in May. Reference has already been made in these columns[1] to the statistics of this part of the society's work as detailed in the registrar's report. But while the cases taken up were equivalent to so many arrests of public dangers, it is unfortunate that the society has no control over the sale of a number of drugs equally dangerous in character to many of those that may only be sold subject to the conditions imposed on the sale of scheduled poisons. The President in his address commented upon the danger to the public arising out of the sale, without the warning of the poison label, of substances like veronal, and mentioned that the Council on March 6th had sent to the Privy Council Office a resolution recommending that this and certain other substances should be added to the Poison Schedule. No intimation, however, had yet been received that the Lords of the Council had confirmed the resolution. While there can be little doubt that the requisite acquiescence will in due course be intimated, it is difficult to understand why it should be delayed so long. After the administration of the law relating to the sale of poisons, the next in importance of the duties of the society is the conducting of the pharmaceutical examinations, the object of which is to ensure that persons who keep open shops for the sale of poisons shall be qualified by training to be entrusted with the compounding and distribution of potent drugs. While the number of candidates for the qualifying examination last year was less by 153 than that examined in the previous year, the percentage of passes was considerably higher than the yearly average, which seems to indicate that more general attention is being paid to systematic preparation than was formerly the case. Allied to examinations is the question of the interchange of certificates of qualification between the recognised pharmaceutical authorities within the British Empire, and the President mentioned that the first reciprocal agreements with colonial pharmaceutical authorities, in pursuance of the new by-law relating thereto, had already been decided upon, so that the Council can now accept, under certain equitable conditions, the pharmaceutical graduates of Victoria and of Queensland, while negotiations are going on with other colonies. In addition to these matters the annual report, which was adopted by the meeting, dealt at some length with the policy of the Council in regard to the National Insurance Act, and stated that the pharmacists of Great Britain have reason to congratulate themselves on the outcome of their struggle for recognition. The question of dispensing by medical men under the Act was adversely commented on.

[1] THE LANCET, Feb. 17th, p. 445.

THE BACTERIOLOGY OF THE RENAL FORM OF TYPHOID FEVER.

THERE is a very rare form of typhoid fever which begins as an acute nephritis, the cause of which is not recognised until the appearance of the rose spots several days later.[1] At a meeting of the Société Médicale des Hôpitaux of Paris on March 15th M. Marcel Garnier and M. Joseph Thiers reported a case in which, apparently for the first time, the bacteriology of this form was investigated. A domestic servant, aged 22 years, was admitted into the Lariboisière Hospital on Nov. 25th, 1911. On the 21st she was seized with rigors and acute pains in the lumbar region and back. She also suffered from headache and insomnia. There was neither epistaxis nor diarrhœa, but the urine was diminished in quantity. She did not take to bed. She had borne two children, and examination of the urine had never revealed the presence of albumin. On examination she appeared to be of robust constitution but was very prostrated. The temperature was 104° F. and the pulse 120. She complained of violent pains in the lumbar region, especially on the right side, which was very tender. The urine amounted to only 250 cubic centimetres in the 24 hours and was of a dark red colour and contained much albumin. Acute hæmorrhagic nephritis was diagnosed and "lactose water" and warm baths were prescribed. On the following day the urine had increased in quantity to a litre, but was still markedly bloody. On the 27th the same symptoms persisted, and tenderness and gurgling were found in the right iliac fossa. Typhoid fever of renal onset was then suspected. From the urine settled an abundant deposit containing numerous more or less deformed red corpuscles, leucocytes, epithelial casts, and numerous bacilli which did not retain Gram's stain. On the 28th many rose spots were found on the abdomen, and the spleen was distinctly enlarged. Widal's reaction was positive. On Dec. 2nd improvement began, and on the 11th the temperature fell to normal, but the urine still contained blood and albumin; it amounted to 1600 cubic centimetres in the 24 hours. On the 17th the urine amounted to two litres and did not appear to contain blood, but there was still albuminuria. On the 21st the number of bacilli in the urine was much diminished, and on the 22nd the albuminuria had disappeared. Recovery was uninterrupted. During the disease the urine was obtained five times by aseptic catheterisation for bacteriological examination. On each occasion it was found to contain the typhoid bacillus. On Nov. 27th, before the appearance of the rose spots, the

[1] THE LANCET, Jan. 21st, 1911, p. 180.

bacillus was present in abundance. The last examination was made on Dec. 25th, the fifteenth day of apyrexia. It is noteworthy that the nephritis of typhoid fever is not accompanied by severe renal symptoms. There is no œdema, epistaxis, cerebral troubles, or uræmia. The renal symptoms consist solely of lumbar pains, oliguria, and hæmaturia, and when the hæmaturia ceases the albuminuria rapidly disappears. A distinction has been made between the renal form of typhoid fever (nephro-typhus) and acute nephritis due to the bacillus of typhoid. In the latter, from the beginning to the end of the disease there are no intestinal symptoms, such as diarrhœa or gurgling in the right iliac fossa, and the diagnosis of typhoid infection rests on the presence of rose spots and the relative slowness and dicrotism of the pulse. In a case recorded by Gouget there was also pleurisy, and the typhoid bacillus was found in the effusion. The typhoid bacillus does not appear to have been found previously in the urine in the renal form of typhoid fever. Bacilluria occurs in about a fourth of the cases of typhoid fever and does not appear to have been recognised before the tenth day. In the present case it was found on the seventh day, and probably could have been found earlier if looked for, because from the time of onset the urine had the same appearance as when it was found. The presence of the bacillus in large numbers in the urine suggests that the nephritis is due to its elimination by the kidney. This may be considered an attempt at defence by the organism.

HUMAN MYIASIS IN THE BRITISH ISLANDS.

THOUGH myiasis in man and beast may be of comparatively common occurrence in the tropics, it is seldom reported in the British Islands. That it does occur in this country is shown by such cases as that recorded by Dr. E. A. Cockayne in THE LANCET of Jan. 20th, 1912, but the subject has not hitherto received the attention which it deserves. Partly, it would appear, by way of supplying this want of information, and partly as a continuation of their previous researches on "Flies as Carriers of Infection" (on which we offered some comments in THE LANCET of Oct. 1st, 1910), the Medical Department of the Local Government Board has recently issued a small series of reports[1] by two experts who have been employed in investigating certain points, Dr. C. Gordon Hewitt, D.Sc., formerly of Manchester University, now Dominion Entomologist for Canada, and Mr. Ernest E. Austen, F.Z.S., the well-known authority on entomological questions. Mr. Austen discusses "British Flies which cause Myiasis in Man," and especially deals with those flies and their larvæ which, as the alleged causes of human myiasis in the British Isles, have been submitted to him during the last 22 years for purposes of identification. The term "myiasis," we are told, signifies the presence of dipterous larvæ (the maggots of flies) in the living body, as well as the disorders occasioned thereby, whether or not accompanied by destruction of tissue. The form most commonly encountered in England is that affecting the alimentary canal, when in addition to the ordinary symptoms of intestinal disturbance, such as diarrhœa and abdominal pain, living larvæ and pupæ are passed in the motions or in the vomit. Instances in which the maggots of flies are found in the nasal cavities, the auditory meatus, or in the urinary passages are of less frequent occurrence in England, though judging by the mention of them in the medical records of other European countries they appear to be by no means so rare. It is comparatively seldom nowadays that any surgeon at his visit finds his patient's wounds fly-blown, whatever may have been the case in past times before the introduction of antiseptic dressings; but that this cutaneous form of myiasis does still occasionally occur in this country, and even in London, is shown by Mr. Austen's report. Dr. Hewitt gives an account of the Bionomics and the Larvæ of the Flies Fannia Canicularis L., and F. Scalaris Fab. and their Relation to Myiasis of the Intestinal and Urinary Tracts. The lesser house fly, F. canicularis, breeds in decaying animal and vegetable matter, and often in human excrement. Fannia scalaris, otherwise known as the latrine fly, is more commonly a cause of human myiasis than the other species just named; it commonly breeds in filth, and it is frequently found infesting the midden privy. The eggs of this fly may be deposited on such articles as over-ripe fruit or vegetables, and when these are swallowed uncooked the eggs may hatch out in the intestinal canal of the victim. The association of the latrine fly with the midden privy affords opportunities to it at times of depositing its eggs directly upon the margin of the anus of a person in the act of defæcation, more particularly when that person is a sufferer from constipation and the exposure of the anus in the fly-infested privy is somewhat prolonged. Sometimes an infant becomes infected when left by a careless mother or nurse lying on the floor with filth-soiled nates, which attract the fly, and as a result the insect may deposit eggs upon the edge of the child's anus. It is, we understand, possible too for these flies to deposit their eggs on the lips or nostrils of a sleeping child or adult. As regards infection of the urinary tract, it is surmised that this may occur, for example, if a sleeper becomes uncovered and there is a muco-purulent or other discharge from the urinary meatus which attracts the insect; its eggs may then be deposited in that situation and give rise to myiasis. There is a good deal of valuable information in these reports by Dr. Hewitt and Mr. Austen, which must prove of great practical service; and in our opinion thanks are due to the Medical Department of the Local Government Board for having instituted this useful research, which, we may remark, adds another indictment to the many already formulated against that old and oft-convicted offender, the midden-privy. We hope that the evidence brought forward against this mediæval method of excrement disposal may assist in accelerating its suppression and the substitution in its stead of the more sanitary water-closet.

[1] Further Reports (No. 5) on Flies as Carriers of Infection. Reports to the Local Government Board on Public Health and Medical Subjects. (New Series, No. 66.) Illustrated. London: H.M. Stationery Office. 1912. Pp. 22. Price 3d.

THE CONDITION OF GOETHE'S EYES.

A CONTRIBUTOR to a recent issue of the *Orvosi Hetilap* remarks that the statues and other existing likenesses of Goethe show that the poet had large protruding eyeballs; his biographers also mention this as the most prominent characteristic of his face. The accepted explanation of this peculiarity is that he was myopic to the extent of at least 6 D., and probably to even a higher degree. Dr. Exner, a Vienna physiologist, first pointed out this fact, and Dr. Dimmer, of Graz, is now confirming the diagnosis. Dr. Exner inferred the myopia of the great poet from the circumstance that in his work on the study of colours he described an optical experiment, from which it is clear that Goethe, when so old that he could not possibly have normal accommodation, could nevertheless see distinctly at a distance of one metre. Many of his contemporaries mention that he could read and write without spectacles, and this strengthens the belief that he was myopic. He did not wear spectacles habitually; he even had such a prejudice against those aids to vision that he made no secret of his dislike to persons whom he saw wearing them, and on April 5th, 1830, he said to his

secretary, Eckermann: "Of what use to me is a man into whose eyes I cannot look and in whom the mirror of the soul is dimmed by a pair of glasses?" Occasionally, however, he had recourse to glasses in the form of a lorgnette. His glasses are still preserved in the Goethe Museum at Weimar; one is a single lens, 6 D. concave, mounted in a gold frame; the other is a double glass in an ebonite handle, the strength of the glasses being 2 D. concave. It is surprising that this great genius, who took so much interest in optics, did not recognise the importance of eye-glasses. Perhaps it was also due to his myopia that his pupils were greatly dilated, and on account of this many people supposed his eyes to be black, although there is no doubt that in his case the iris was brown.

WE are glad to learn that the matinée on June 6th at St. James's Theatre in aid of the British Medical Benevolent Fund Guild is assured of a great success. All the seats are sold with the exception of a few stalls. Through the kindness of certain friends all the beneficiaries of the Fund and the Guild who are within easy reach have been offered reserved seats.

A COURSE of six lectures on the Diagnostic Value of Sensory Changes in Diseases of the Nervous System will be delivered by Dr. Henry Head in the Clinical Theatre of the London Hospital on Mondays at 4.15 P.M., beginning on June 3rd. Members of the medical profession wishing to attend are cordially invited.

THE committee for the removal of King's College Hospital has received from an anonymous donor a cheque for £30,000, being the first instalment of a donation of £50,000. By the donor's desire £2500 of this amount is specifically set apart for the new medical school buildings.

Sir Dyce Duckworth has been promoted from Knight of Grace to Knight of Justice in the Order of the Hospital of St. John of Jerusalem in England.

THE Friday evening discourse on June 7th at the Royal Institution, Albemarle-street, W., will be given by Sir William Macewen on "Lord Lister."

HONORARY DEGREE FOR DR. R. C. BROWN.—In the Senate House of Cambridge University on May 23rd the degree of M.A. (*honoris causâ*) was conferred upon Dr. R. C. Brown, of Preston, in connexion with the opening by him of the new Research Hospital, which is described in another column. This latest recognition of Dr. Brown's services to the profession and the public affords great pleasure to his many friends. The Public Orator, Sir John Sandys, in presenting Dr. Brown for the degree, spoke as follows:—

Medicum modestum, medicum munificum, qui tot alios tam diu salvere iussit, ipsum hodie iubemus salvere. Lancastrensium in comitatu medio in oppido suo natali, Salutis templo amplificando, et in melius mutando, quantum temporis, quantum pecuniae dedicavit! Ibi pauperum tabernis quantum lucem, quantam salubritatem, quot vitae melioris commoda intulit! Arti musicae deditus, convalescentibus ars illa quantum prosit, quam sollerter indicavit; quod nomini vestrum mirum sit, novimus enim ipsum Apollinem non modo Aesculapii patrem, sed etiam Musarum omnium, atque adeo artis musicae, fuisse patronum. Idem eos, qui inter nosmet ipsos in certos quosdam morbos curiosius inquirunt, liberalitate maxima adiuvit; instrumentis subtilissimis ornavit; militiae denique huius tironibus stipendia quotannis distribuenda curavit. Vir igitur in artem medicam tam munificus, artium magister hodie honoris causa merito nominatur. Idem domicilium novum his studiis benefactorum complurium liberalitate dedicatum die crastino auspiciis optimis inaugurabit. Duco ad vos medicum insignem, virum et medicinae in studium et in Academiam nostram munificum, ROBERTUM CAROLUM BROWN.

THE MEDICAL PROFESSION AND INCOME-TAX UNDER SCHEDULE D.

FROM time to time readers of THE LANCET write to us asking for advice as to making a return of their income, and especially seeking information as to the deductions which can be claimed in preparing their statement. We answer these questions where sufficient details are given, but often we cannot know the special circumstances of the inquirers. On the matter of deductions, however, while it is not possible to state in a general article exactly all that can be made, we may, by presuming that we are treating of the case of an ordinary practitioner with no other income than that derived from his profession, enumerate fairly accurately the deductions that he can lawfully claim. No doubt, in endeavouring to afford this general information we shall not be conveying anything new to the majority of our readers, but if our remarks are useful to even the minority the space occupied will not have been wasted. The moment for dealing with the subject is, perhaps, opportune, as the annual visit of the buff-coloured form is imminent.

Method of Assessment.

It cannot be too emphatically laid down, in the first place, that the duty under Schedule D is to be computed upon the balance of profits on an average of the three years preceding the date of assessment. Most professional men make up their accounts to coincide with the civil year—that is, from January to December; but any other period will suffice: for instance, from April 1st to March 31st, so long as it does not exceed 12 months. The three years' average permits the possible losses of one or two years to be set off against the profits of another year, and where the profits are gradually increasing puts the assessment upon the average of three years instead of upon the enhanced profit of the last year of the period. For example, A B, at the end of the year 1911, finds that he has made a net profit of £550. In 1910 he made a profit of £420, but in 1909 he made a loss of £260. His figures would, therefore, work out thus:—

	£	*s.*	*d.*
Net profit for 1911	550	0	0
,, ,, ,, 1910	420	0	0
	970	0	0
Less loss for 1909	260	0	
Total profits for three years	710	0	0
Average annual profits...	236	13	4
Less abatement (being under £400)...	160	0	
Total on which duty is payable	76	13	4

The advantage of computing the three years' average is clear. If the duty were payable on the profits of the year 1911, he would have to pay on £550, which, at 9*d.* in the £, would amount to £20 12*s.* 6*d.*; whereas, on the three years' principle, the sum to be assessed is only £76 13*s.* 4*d.*, the duty on which, calculated as £77, amounted to £2 17*s.* 9*d.*, showing a saving of £17 14*s.* 9*d.* Where a business has been commenced within the three years the assessment will be made on the average of profits from the period of commencing it to the day on which the last annual accounts are made up, or to April 5th. If commenced within the year of assessment then the duty payable would be on the profits to the best of the knowledge and belief of the person making the return. Where a business already established is taken over, the incoming proprietor is charged the same as his predecessor.

Exemptions and Abatements.

This is the *method* by which the average for assessment is arrived at. It will next be useful to say something about exemptions and abatements, and about "earned" and "unearned" incomes. Total exemption may be claimed where the income does not exceed £160. Abatement of £160 may be claimed when the income exceeds £160 but does not exceed £400; of £150 when the income exceeds £400 but does exceed £500; of £120 when the income exceeds £500 but does not exceed £600; and of £70 when the income exceeds £600, but does not exceed

£700. When the income does not exceed £500 an abatement of £10 for each child or step-child under 16 years of age may also be claimed. And here it should be carefully noted that to get the advantage of abatements they must be claimed; it is not sufficient for a person to return his income at, say, £350, thinking that the surveyor will himself make the abatement of £160 allowed by statute. The surveyor will assess on the amount actually returned, and when no abatement is claimed will not allow any. (Why this should be so, seeing that the Act distinctly allows the reduction, is not apparent.) But few medical men have an income exceeding £3000 per annum, and those of our readers who are among that fortunate number probably know that the tax for the current year on earnings is 9*d.* in the £ only when the "earned" income from all sources does not exceed £3000, but 1*s.* 2*d.* in the £ when the income, "earned" or "unearned," exceeds that sum. When the income is below £3000, and consists partly of "earned" income and partly of "unearned" income, the tax will be at 9*d.* and at 1*s.* 2*d.* on the respective proportions. And here again it should be carefully borne in mind that a claim for the lower rate of tax should be made at the time the return is sent in, and in any case before Sept. 30th in the year for which the tax is charged, or the surveyor will not allow the lower rate.

It is not, of course, practicable to enumerate the many possible items which may be deducted in arriving at the net profits of a year's working; but it should always be remembered that the first principle of income-tax computation is that the sum to be assessed is the balance of profits or gains arising from any profession, trade, or other concern remaining after the *bonâ-fide* expenses incurred in acquiring such profits have been met. If this principle be thoroughly borne in mind and firmly grasped when preparing a return for income-tax purposes the person making such return will not go very far wrong.

Example of Account.

We purpose now giving an example of an account which may very well meet the case of the majority of the readers of THE LANCET, and also serve as a guide to them in making their returns. It is made out on the three years' principle, as mentioned above.

Return for Assessment for the Years Ending Dec. 31st, 1909, 1910, 1911.

—	1909	1910	1911
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
To rent, rates, and taxes of house (two-thirds)	54 13 4	55 6 6	55 2 3
Share of servant's wages	13 0 0	13 0 0	13 0 0
Rent, rates, &c., and upkeep of branch surgery	35 6 0	35 18 6	36 13 9
Assistants and locum-tenents	136 10 0	155 15 0	176 10 6
Drugs and instruments	46 7 8	33 12 9	37 5 6
Medical books, journals, &c.	5 9 6	8 12 9	6 13 6
Wages and keep of coachman	91 0 0	97 10 0	104 0 0
Forage, harness, &c.	72 6 6	74 8 9	73 9 6
Depreciation of carriages	18 0 0	18 0 0	18 0 0
Stationery and sundries	12 13 6	14 3 9	13 1 3
Balance (profits)	472 10 0	579 11 5	602 18 3
	957 16 6	1085 19 5	1136 14 6
By receipts from practice	957 16 6	1085 19 5	1136 14 6

Adding together the profits for the three years (£1654 19*s.* 8*d.*) and dividing by three will give the income to be returned as £551, ignoring the odd shillings. A demand for this amount, if the surveyor agrees, will be made early in January, 1913.

Consideration of Items.

Most of the items explain themselves. The cost of maintaining a consulting-room or surgery, apart from the actual place of residence, for the exclusive purpose of business is a legitimate item for deduction, and all expenses incurred in the upkeep of such rooms may be deducted. When the place of residence is used also partly for business purposes a sum not exceeding two-thirds of the rent or annual value, and two-thirds of the rates and taxes, may be allowed by the Commissioners, and should be deducted when making the return. A deduction should also be made for a share of the wages of the servant who attends upon patients when they call, and who will be employed in the house for ordinary domestic duties at other times.

Under the heading "medical books, journals, &c.," would be included subscriptions to professional societies, to professional newspapers, and to periodicals for the use of patients in the waiting-room. The item for "assistants and locum-tenents" is obviously an equitable deduction, but just recently a correspondent asked for advice in a case where his local surveyor declined to allow the deduction, basing his action on a case he cited, "Lothian *v.* Macrae." We advised our correspondent [1] to insist on the deduction, with what result we have not heard; but it appears that the case cited by the surveyor was an ecclesiastical one, and did not cover the point—except, perhaps, by a more or less strained analogy of the "official" mind—of assistants and locum-tenents of medical practice.

Where a motor-car is kept instead of horses and carriages the allowance for depreciation is often a vexed question with the surveyor. However, a fair claim may be made out on the principle that the useful lifetime of a car to a medical man is three years. Taking the cost of a car at £500, which will have been paid for out of capital, and will not be allowed as a deduction for income-tax purposes, and the selling price at the end of three years at £200, the annual depreciation would work out at £100, and should be charged at this sum. If, however, the car is also used for private purposes, as most likely it will be, an allowance must be made for this, and the claim for depreciation reduced accordingly—say to £80. Of course, petrol, oil, grease, new tyres, repairs, &c., will be charged, as also the wages and keep of the chauffeur and the cost of licences and insurance.

Under the heading rent, rates, &c., should be included fire insurance premiums, all rates, gas, electric, and water rents, and rent of premises, but not the amount paid for income tax. No allowance is permitted for this latter, or for any sums paid as salaries to partners or principals, or for the maintenance of themselves, or families, or establishments.

The amount of the premium paid for life insurance or for a deferred annuity, either on the life or for the benefit of the person making the return, or on and for his wife, or for both, may be put in, provided that it is not more than one-sixth of the income from every source, and provided also that it does not so operate as to give total exemption. For instance, a person with an income of £170 who paid £15 a year for life insurance would not be permitted to claim total exemption, nor would abatement be allowed where the premium had the effect of reducing the income below the respective limits. Many medical men, in addition to insuring their lives, have accident policies mainly covering disablement by injury and sickness, but which have a provision in case of fatal accident also. A deduction from income-tax can be claimed to the extent of the amount of the premium reserved for the fatal risk, and information as to this amount can always be obtained from the company issuing the policy. No allowance, however, is permitted for that part of the premium covering disablement from injury or sickness. It should be borne in mind by those who have any income arising from dividends that in nearly all cases the amounts have been taxed before being paid over to them, and consequently the dividends should not be returned as income if they have been so taxed, though they will have to be detailed to claim the lower rate of tax—9*d.* instead of 1*s.* 2*d.*

Partnerships.—Repayment of Duty.

Where a partnership exists, and the profits when divided are under £700 for each partner, the parties should claim to be separately assessed, as by this means abatement or total exemption may be claimed. For instance, suppose A and B are in partnership, and that the net profits for their last financial year amounted to £750. If this sum be returned under a joint partnership account the duty payable on the full amount at the "earned" income rate would be £28 2*s.* 6*d.* If, on the other hand, they claimed to be separately assessed, and their shares in the business were equal, they would each return their incomes at £375, claim abatement of £160, and if there were

[1] THE LANCET, March 23rd, 1912, p. 844.

no other deductions to be made, such as life insurance, &c., would each pay duty on £215, amounting to £8 1*s.* 3*d.*; or if the net profits of the partnership did not exceed £320 they could, when separately assessed, claim exemption altogether. Another advantage of the separate assessment (though one, perhaps, not particularly affecting the medical profession, seeing that its members are not engaged in trade) is that the losses sustained in one concern can be set off against the profits acquired in another. For example, the above-mentioned B, who returns his income from the partnership account as £375, might be engaged in another concern and have sustained a loss on his year's working amounting to £225. He would be entitled to set this against the £375, reducing his income to £150, which, seeing that it is under the minimum, £160, would exempt him altogether from the payment of any duty on that year's income. Whilst on the subject of partnership we may mention a case which came under our notice some few years back, where the partners made the joint return and paid the duty demanded. One of them afterwards filled up the usual buff form annually circulated by the Inland Revenue authorities stating his income as such and such a sum, and the usual demand note for payment of duty followed. The duty was accordingly paid, the person making the return overlooking the fact that the duty had already been paid on his income in the joint partnership account, and therefore was not again chargeable. Instead of setting forth the particulars of his income, he should have filled in the table on the form declaring that he was a partner in trade chargeable under the joint assessment of the firm. Application for repayment for three years was made on our advice to Somerset House, and in due course a warrant for over £100 was received from the Commissioners.

With regard to claiming repayment of duty, most people are under the impression that income-tax once paid is lost for ever. Such, however, is not the case. Repayment can be obtained, provided the claim for such repayment be made within three years next after the end of the year of assessment to which the claim relates. The necessary forms for claiming repayment can be obtained from the surveyor of taxes in the district in which the person claiming resides.

We have made no attempt to deal with the whole question thoroughly; to do so would occupy far more space than we have at our disposal, and the result would certainly not be of any individual interest to our readers. We have merely set out the general principles which should guide medical men in making their income-tax returns, with special reference to the various claims for abatement that can be made and to the methods of making them. Our final advice to all medical men is: Keep an account of your receipts and expenses, and you will have no difficulty in amicably settling your assessment with your surveyor.

MEDICINE AND THE LAW.

Parents and Medical Aid for Children.

IN the case of R. *v.* de Crespigny and Another brought before the Divisional Court upon a writ of *certiorari*, a parent convicted under Section 12 of the Children Act, 1908, on account of his having refused to submit his child to a surgical operation, sought to have the conviction quashed. Carter, the applicant for a rule, a quarryman in Northamptonshire, had a little girl 5 years of age attending a county council school. It was there observed that she could not articulate, and the school medical officer having found that she suffered from a cleft palate recommended an operation to cure it. He urged the father to allow the operation to be performed, but he refused persistently, and the matter was accordingly brought to the notice of the Society for the Prevention of Cruelty to Children, who undertook the prosecution of the parent with a view to testing the legality of his refusal and of procuring suitable surgical treatment for the child. The justices, the respondents in the case argued, convicted Carter of an offence under the section mentioned above. At the stage to which attention has been called by the proceedings under comment the propriety of the conviction upon the facts has not been considered, for the point was raised before the Divisional Court that the procedure adopted (that of bringing up the conviction by *certiorari* and asking for it to be quashed) was wrong, as there was no such irregularity in the conviction as would justify this. In support of the rule it was argued that by Section 3 of the Local Education Authorities (Medical Treatment) Act, 1909, there was no obligation upon a father to submit his child to medical inspection or treatment under Section 13 of the Education (Administrative Provisions) Act, 1907, and it was contended that the former section had the effect of a statutory indemnity protecting the parent against legal proceedings under Section 3 of the Cruelty to Children Act, so that the conviction would be bad on the face of it. It was pointed out, however, in reply to this that the proceedings under discussion were not taken by the education authority, but by the Society for the Prevention of Cruelty to Children, to whom the facts relating to the child's condition had been reported. The court, after hearing argument on both sides, decided that the case was not one for quashing the conviction under a writ of *certiorari* and discharged the rule, saying that the question for the magistrates, and the only point at issue, was whether the facts justified a conviction for refusing to provide medical aid. This question could be raised by other proceedings than a writ of *certiorari*, and the refusal of the court to quash the conviction under the procedure adopted would not preclude the father from appealing in another manner. The case is one of interest to education authorities as defining their position on occasions such as that described, and to the medical profession as raising again the often discussed topic of the right of parents to refuse for their offspring that relief which modern surgical science and modern public benevolence place within the grasp of the working classes.

Conviction for an Illegal Operation.

At the recent sessions at the Old Bailey William Arnold Thomson, a registered medical practitioner, was convicted of performing an illegal operation upon a woman then living at Acton, but who had since died, her death not being due to the operation. The prisoner gave evidence on his own behalf, denying his guilt with emphasis, but was found guilty and sentenced by Mr. Justice Phillimore to three years' penal servitude.

PUBLIC HEALTH ADMINISTRATION IN EGYPT DURING 1910.

FROM the recently issued annual report of the Egyptian Public Health Department for 1910 it appears that a vast amount of work over and above that usually included in the term "public health" was carried out during the year.

Scope of Public Health Work in Egypt.

Among a variety of other responsibilities the administration of the Government hospitals in Egypt falls to the Public Health Department. Some idea of this work may be gathered from the fact that during 1910 nearly 40,000 patients were treated in these hospitals, and in addition 152,733 outpatients; at the public dispensaries, also supervised by the department, 38,449 other persons were attended gratuitously by the medical officers, and yet 14,486 others in the special ophthalmic hospitals in which also 11,486 operations were performed; further, in the asylums for the insane 1304 lunatic patients were treated. The department is concerned, also, in medico-legal investigations, 39,626 cases of this kind having been reported upon in 1910. The medical officers upon whom this duty is imposed spend about one-third of their time in such investigations, many of which are of a trivial and useless description, but which nevertheless take up time which could be far better spent in much-needed sanitary work. In this connexion Dr. W. P. G. Graham, the Director-General, remarks that if public health work in the provinces is to be progressive, either an increase of the medical staff will be necessary or the system at present in vogue for inquiring into and reporting upon medico-legal cases will have to be modified so as to reduce the number of cases for investigation, and leave the medical officers free to devote more of their time to genuine sanitary work. The ordinary budget of Dr. Graham's department for 1910 amounted to £E301,514, being an increase of £E10,109 upon the previous year. The staff, lay and medical, temporary and permanent, giving whole or part time to the duties, numbered no fewer than

1857, of whom 541 were "*personnel classé*" and 1316 "*hors de cadres*" or employed under special credits.

The report is divided into five chapters, dealing respectively with medical administration, public health, scientific establishments, veterinary department, engineering department, and legislation. Considerations of available space in these columns permit us to refer briefly to only a few of the interesting details contained in this valuable report.

Infectious Diseases.

Some 16,528 cases of infectious disease were notified by the medical officers of the Ambulance Service, and of these 5921 proved fatal. The notifications comprised 7435 cases of measles (of which 3553 died); 3066 small-pox (561); exanthematic typhus 2833 (733); plague 1238 (615); relapsing fever 926 (43); diphtheria 656 (327); and enteric fever 325 (89). As regards small-pox the figures show some decrease upon those for 1909, when 3883 cases and 715 deaths were recorded. Only 34 attacks and six deaths were referred to Cairo. The number of vaccinations and revaccinations performed throughout Egypt during 1910 amounted to 466,990, but the figures are incomplete since returns from 754 villages had not been received when the report was written. The lymph prepared at the Government Vaccine Institute is produced from selected buffalo calves, ranging in age from 10 months to 2 years; from each animal upon an average about 10,000 units of lymph are collected, an amount considerably above what is commonly obtained at many other vaccine institutes. The returns show a marked increase in the incidence of plague during 1910; the attacks, as has been mentioned, numbered 1238, as compared with 513 in the previous year; and the deaths 615, against 207 in 1909. The plague case-mortality rate in 1910 was 49 6 per cent., the mean of the last 12 years being 56·1. It is noteworthy that of 159 cases of the pneumonic type all save one were reported from Upper Egypt, where the virulence of the disease has been for some time much greater than in Lower Egypt. During the year 147 separate localities were invaded by plague, against 76 in 1909. Altogether, from 1899 to 1910 inclusive, 7475 cases and 4331 deaths from plague have been reported in Egypt, and of these 1065 attacks and 639 deaths occurred in Alexandria; while only 2 cases and 1 death were certified during the same period in the city of Cairo, with a population nearly double that of Alexandria.

Malaria and Mosquito Destruction.

In October an outbreak of acute illness diagnosed locally as "relapsing fever" was reported to have occurred in the settlement at Kharga Oasis. Experts sent by the Public Health Department to investigate the outbreak pronounced it to be tropical malaria. Energetic measures were carried out and the disease subsided, but in view of the necessity for carefully controlling the breeding places of the mosquitoes around the settlement it was proposed to appoint for duty in the locality a medical officer who had been specially trained in modern diagnostic and prophylactic methods. Extracts are given from a report by Dr. J. E. Creswell on anti-malarial work at Suez, where this is done in coöperation with the local landowners, who, however, are it appears mostly poor men. Only eight deaths from malaria occurred at Suez during 1910. Dr. Graham states that the disease is still endemic, and that if it were "stamped out" it would soon recur around Suez owing to the constant arrival in the town of persons from other districts infected by malaria, and owing to the anopheles from further up the canal coming to reinfect the drains and ditches. Cultivation of the land at Suez is increasing, but unless the local "mosquito brigade" be augmented to keep pace with the extended area under cultivation malaria will again increase in amount. At present not only has the incidence of the disease in Suez been diminished, but its type has been rendered less severe, fewer deaths having resulted. The native cultivators have also discovered that the anti-malarial drainage measures are in their own best interests, since the land profits much by the improved drainage.

The Pilgrimage of 1910.

Over 22,000 pilgrims embarked at Suez for the Hedjaz in the latter months of the year, and of this total number 14,861 were Egyptians. Owing to the occurrence of cholera at Mecca and elsewhere the pilgrimage of 1910 was declared infected. Cholera also threatened Egypt from certain districts in Southern Russia, as well as from Constantinople, Smyrna, and Tripoli; pilgrims from the Far East arriving at the sanitary station on the island of Camaran, at the entrance to the Red Sea, brought with them cholera to add to the danger. The International Quarantine Board is responsible for the defence of Egypt against imported cholera, and the Public Health Department under Dr. Graham coöperates in every way as the second line of defence. The admirable organisation at the sanitary station at El Tor was of the greatest service in preventing the importation of cholera by the pilgrims returning from the Mohamedan Holy Land. Fortunately no cases of cholera were notified in Egypt during 1910, notwithstanding the many possible sources of infection.

General Sanitary Measures.

The sanitation of mosques and the provision of sanitary latrines accessible to the public were specially pressed upon the notice of the authorities by Dr. Graham. In the course of the year 8379 contraventions of the sanitary laws in Egypt came under notice, and in the subsequent proceedings which were taken there were 6592 convictions and 341 acquittals; 854 other cases were pending when the report was written, and 592 were "filed." The new waterworks for Cairo were expected to be ready for use some time in the present year. The water is taken from the River Nile, and after being held up in sedimentation reservoirs is passed through mechanical filters (Jewell's) and afterwards delivered to the town. The same kind of system appears to have worked successfully at Alexandria. The extension of the Port Said waterworks continued during 1910 and was, we understand, completed in 1911.

Scientific Investigation and Research.

The Hygienic Institute and Bacteriological Laboratories continued to do a large amount of excellent work, especially in the examination of material from hospital patients for diagnostic purposes, 4075 such samples having been submitted during the year; in addition, 1353 bacteriological examinations of water were made and 507 chemical analyses. Investigation of the properties of the serum of animals used for the preparation of cattle plague serum at the Serum Institute was continued and gave interesting results. The investigation of pellagra in Egypt was, unfortunately, interrupted by pressure of other work and by the scantiness of the expert staff, but it is hoped to resume shortly the inquiry into this mysterious disease and also its connexion with insanity. The occurrence of a prevalence of swollen legs among the inhabitants of Abou Roash led to an inquiry by members of the staff, who reported that the patients were suffering from elephantiasis arabum. Examination of the blood of apparently healthy persons in the village showed that 46 per cent. of them were suffering from filariasis, and similar investigation in two other villages showed the people to be highly infected by the same disease. These places, therefore, are now regarded as endemic centres of filariasis. In the Anti-Rabic Institute 658 individuals were treated, against 694 in 1909; there were 13 deaths, 9 of these occurring during the treatment or within 15 days of its completion. In the Khedivial laboratory 718 analyses of articles of food or drugs were made; and in the Serum Institute 85,041 doses of cattle plague serum were produced. The members of the staff of these institutes published in various journals during the year five scientific papers, one of which appeared in the Proceedings of the Royal Society. An interesting report by the chief veterinary inspector is also appended.

Dr. Graham, in conclusion, explains that the delay in the publication of his report has been due to stress of official work and other unexpected hindrances.

There can be no doubt that good progress is being made, and that much excellent sanitary work is being done by the Egyptian Public Health Department under its present director-general.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—The Vice-Chancellor of the University of London (Sir William Collins, M.D.) will present the prizes to the students of the London School of Medicine for Women at 8, Hunter-street, Brunswick-square, W.C., on Friday, June 7th, at 4 P.M. Mrs. Garrett Anderson, M.D., President of the school, will be in the chair.

THE OPENING OF THE NEW RESEARCH HOSPITAL AT CAMBRIDGE.

IN THE LANCET of May 18th we drew attention once more to the work of the Committee for the Study of Special Diseases and to the newly built Research Hospital at Cambridge, in which that work will in future be carried out. On Friday, May 24th, the hospital was opened by Dr. R. C. Brown, of Preston, who has generously aided the scheme from the beginning, and upon whom the University of Cambridge conferred the honorary degree of M.A. on the previous day. The afternoon was fine, and a large company attended the opening ceremony. Those present included Sir T. Clifford Allbutt, Regius Professor of Physic; Professor Howard Marsh, Master of Downing College; Mr. A. E. Shipley, Master of Christ's College; Professor G. Sims Woodhead; Dr. Norman Moore; Dr. W. H. Gaskell; Sir Alan Manby, M.D.; Mr. J. G. P. Rawlinson, K.C., M.P., Recorder of Cambridge; the Mayor of Cambridge; Mr. Francis Darwin; Miss Sykes, the donor of the site and Research Laboratories; Mr. H. W. Maguire, the architect; and Mr. T. S. P. Strangeways, Huddersfield Lecturer in Pathology, to whose energy and enthusiasm the scheme is so greatly indebted.

The new hospital is delightfully situated some little way out of the town at the junction of Hills-road and the old Roman road (the Via Devana). The site has a south-east slope with gravel soil, and the windows command the country-side around the Gog-Magog hills. The design of the building is simple and effective. There are well-equipped research laboratories and a museum on the ground floor, and a Dowsing radiant heat apparatus in one of the upper rooms. There is also a photographic dark-room and a room for the X ray apparatus. At the back and front, on the first floor, there are balconies for the patients, and the sister's room on the left of the lounge commands all the four wards. The bath-rooms, lavatories, &c., and below them the scullery, are all situated in a cross-ventilated annexe. Around the southern sides of the hospital a broad terrace has been built, which provides a sheltered walk for the patients. Here on May 24th the building was formally declared open. A tent in the grounds had been fitted up as a pathological museum, and many instructive preparations and photographs illustrating the ravages of chronic arthritis had been arranged on trestles. Owing to the wind outside, the company adjourned to the tent to hear the speeches.

View of the Research Hospital from the front.

Dr. BROWN first read messages of regret for their absence from the Vice-Chancellor of the University, from Dr. Samuel West, and from Mr. Rickman J. Godlee (President of the Royal College of Surgeons of England), who was prevented from coming by the non-departure of his train from London. Professor Sir William Osler, Sir Thomas Barlow (President of the Royal College of Physicians), and Sir W. S. Church, were also unable to be present. Dr. Brown then gave an interesting survey of the progress of medical science during the 76 years of his life. Since such marvellous discoveries and improvements had been made in that period he looked forward to even greater advancements in the future. He said that the ultimate object of their research there was relief of suffering and restoration to health, and he commended the hospital to the public for its interest and support.

Dr. NORMAN MOORE, on behalf of the Royal College of Physicians of London and the Royal College of Surgeons of England, welcomed the new hospital. He said that its aims and methods had the enthusiastic approval and support of both of the Royal Colleges, which had long been working at the same tasks and well knew their difficulties. The Royal College of Physicians had been engaged in research since 1518. The earliest recorded case at St. Bartholomew's Hospital was one of chronic arthritis in the reign of Henry II. Since then they had advanced little in the treatment of the condition because the cause was not understood. He hoped that in a few years the Research Hospital would accomplish more than had been done in the rest of England since the time of Henry II.

The MAYOR expressed the good wishes of the town and neighbourhood towards the hospital and its work.

Sir CLIFFORD ALLBUTT gracefully acknowledged the debt of the Committee for the Study of Special Diseases to Dr. Brown, Miss Sykes, and other generous friends, and to Mr. Strangeways who had been the life and soul of the work. Already 4000 cases of rheumatoid and osteo-arthritis had been minutely investigated and recorded, and the time was soon coming, they hoped, when the hospital would be free to extend its researches into other obscure diseases.

The hospital was then thrown open for inspection. Much admiration was expressed by the visitors at the general design and arrangement of the building. The architect has certainly been very successful in the difficult task of designing a building which may be used as a hospital or hospital and laboratory combined, or, if need be, a private residence. There are already several patients in the wards, and the visitors, among whom there were many ladies, were able to see the institution in working order. It is a great satisfaction to all concerned to know that the new building has been opened free of debt, and it is hoped that a substantial endowment fund may also be raised when the work of the hospital is better known and appreciated.

THE BRISTOL LUNATIC ASYLUM.—The annual report of the visiting committee of the Bristol Lunatic Asylum, which has just been issued, states that the institution at the close of the year contained 968 patients, of whom 469 were men and 499 were women. Of this total, 140 men and 78 women were admitted during 1911. Seventy-one patients were discharged during the year as recovered; the percentage of recoveries on admission, excluding transfers from other asylums, was 36·92.

PUBLIC HEALTH IN THE STRAITS SETTLEMENTS.

THE report for 1910 on medical administration in the Straits Settlements is presented by Dr. F. B. Croucher, the acting principal medical officer.

Vital Statistics.

The total population is estimated at 653,853, the birth-rate being 27·55 per 1000 and the death-rate 42·83 per 1000. The average birth-rate for the last 10 years is stated to have been 26·51 and the average death-rate 40·16 per 1000. Singapore is the most considerable of the scattered settlements forming this administration, having a population of 284 449, with a birth-rate of 22·66 and a death-rate of 46·95 per 1000. These figures cannot be regarded as satisfactory from the ordinary standpoint of public health. In Penang Island, the next most populous settlement (134,343), the birth-rate is even lower (22·52); the death-rate is also slightly lower (43·12). In Wellesley Province, on the mainland, with a population of 123,289, the respective ratios approximate closely together (29·52 births and 29 87 deaths per 1000). Of the total deaths, 18 47 per cent. were among infants under one year of age, a slight improvement on the previous year's returns. A nurse to instruct native mothers in the care of infants has been appointed at Singapore, in the hope that this mortality may be reduced; also four native pupils are being trained as midwives.

Cholera.—Beri-beri.

Of the zymotic diseases, cholera caused 247 deaths and small-pox 522 deaths, the latter disease appearing in all the provinces. There were five deaths from plague, all at Singapore, among Chinese. The chief outbreak of cholera occurred on the Caledonia estate in Wellesley province in July among "free" (not indentured) coolies. These coolies used water for drinking and cooking that was polluted by excreta; there is therefore no cause for surprise at the occurrence of the epidemic. In 1906 a similar outbreak occurred, which ceased when salt water was admitted to the polluted trenches suspected of causing the disease. On the present occasion the trench water had been treated with potassium permanganate, the management authorities of the estate "not being able to see their way to the flushing of the trench with sea-water." Dr. W. S. Sheppard, in his report (not dated), states that a pure water-supply was available for the indentured coolie lines, but not for those of the free coolies. He recommended that the service should be extended, but up to the time of his report nothing had been done. No comment is made by the principal medical officer. It is difficult for anyone acquainted with public health matters to read this report without regretting the absence of comment and of indication that anything is being done to prevent recurrence. A cholera outbreak also occurred in the Singapore lunatic asylum, of (apparently) 48 cases and 38 deaths. The inmates were removed to the quarantine station on the fourth day of the outbreak, but cases continued to occur amongst those transferred. No local cause could be discovered; the medical officer thinks "the true solution of the outbreak lies in the fact that cholera was very prevalent in Singapore." This was no doubt the cause, but cannot be regarded as the solution (by which is meant the explanation) of the epidemic. It might be suggested that carrier cases were probably present. In any case the occurrence of 39 cases of cholera after removal from the supposed infected spot is regrettable; the fact of their being lunatics no doubt rendered adequate preventive measures very difficult of execution.

Beri-beri was somewhat more prevalent than in the last few years, having caused 1737 deaths. Parboiled rice is used in all hospitals with satisfactory results. No cases at all occurred in the Singapore lunatic asylum; in the beri-beri hospital 437 cases were under treatment, of whom 285 were discharged as recovered or improved. In Malacca the disease is said to be making alarming strides, the figures for the hospitals not giving any idea of its prevalence in the Settlement. There has also been an increase at Labuan, due to recently imported coolies; the report states that it is impossible to obtain parboiled rice there.

Small-pox and Vaccination.

Small-pox prevailed in all the Settlements during the year, there having been 1879 cases and 522 deaths, these figures being in marked contrast with the 62 cases and 11 deaths recorded in 1909. An analysis of the cases treated at the Penang quarantine camp showed that 162 cases had no vaccination marks, and of these 67 (41·3 per cent.) died; 49 had three marks, and of these 2 died (4·08 per cent.); while 18 had more than three marks, and of these none died. There were 783 contacts admitted with these sufferers, all of whom were vaccinated on admission to the camp, except one girl (aged 22) who escaped revaccination, took small-pox and died; and a child (aged 9) who was thought to have been much younger, and was therefore not revaccinated on admission; four days later she was revaccinated, but mild small-pox developed. These were the only cases in which small-pox originated in the camp at Penang. If logical opponents of vaccination would endeavour to make themselves acquainted with facts such as these, they could not fail to be convinced of its efficacy.

The total death-rate in Malacca is very high, 52·45 per 1000, the increased mortality being mostly in young children. Out of the total 5188 deaths, 1259 resulted from infantile convulsions, due to faulty feeding (e.g., boiled rice). Referring to the Government Medical School, Dr. R. D. Keith, the Principal, remarks that although most students are industrious and intelligent, many seem to have an exaggerated idea of their own capabilities, and to be lacking in mental as well as physical stamina. It is to be hoped that, as time goes on, improvement will become apparent.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ANNUAL ELECTION OF MEMBERS OF COUNCIL.

ON July 4th a meeting of the Fellows of the College will be held to elect four members of Council. The vacancies will be caused by the death of Sir H. T. Butlin, and the expiration of the terms of office of Sir F. S. Eve, Sir A. A. Bowlby and Mr. Gilbert Barling.

The following table represents the dates of retirement of the present Members of Council:—

		First elected in—
Retire in 1912	Sir F. S. Eve	1904
	Sir A. A. Bowlby	1904
	Mr. Gilbert Barling	1904
Retire in 1913	Mr. Edmund Owen	1897
	Mr. R. J. Godlee (President)	1897
	Mr. C. H. Golding-Bird	1905
Retire in 1914	Sir Henry Morris	1893
	Mr. F. Richardson Cross	1898
	Mr. C. A. Ballance	1910
Retire in 1915	Mr. C. W. Mansell Moullin	1902
	Mr. W. Bruce Clarke	1907
	Mr. C. J. Symonds	1907
Retire in 1916	Sir A. Pearce Gould	1900
	Mr. W. F. Haslam	1908
	Mr. W. Arbuthnot Lane	1908
Retire in 1917	Sir W. Watson Cheyne	1897
	Mr. R. Clement Lucas	1901
	Mr. W. Harrison Cripps	1905
Retire in 1918	Mr. C. B. Lockwood	1908
	Mr. Bilton Pollard	1910
	Mr. J. Bland-Sutton	1910
Retire in 1919	Mr. C. T. Dent	1903
	Mr. G. H. Makins	1903

The distribution of the present representatives amongst the medical schools is as follows:—

		Members of Council.
Guy's Hospital	supplies	5
St. Bartholomew's Hospital	,,	4
Middlesex Hospital	,,	3
London Hospital	,,	2
St. Thomas's Hospital	,,	2
University College Hospital	,,	2
King's College Hospital	,,	1
St. Mary's Hospital	,,	1
Provincial hospitals	supply	3

THE NEW PUBLIC HEALTH AND VACCINATION LAWS IN THE PROVINCE OF ONTARIO.

A PRAISEWORTHY desire for progress in public health matters has lately been evinced in different parts of Canada, and is conspicuously shown in two recent Acts of the Legislative Assembly of the Province of Ontario.

Public Health Act.

The first of these is a codified and amended Public Health Act, which contains many provisions that are found in English legislation, as well as others which break new ground. The "communicable diseases" of the Act, for example, all of which are required to be notified to the medical officer of health or local board of health, and are to be controlled by regulations of the central authority, include tuberculosis (apparently in all forms), mumps, measles, anthrax, rabies, poliomyelitis, and cerebro-spinal fever, as well as those which are specified in our Infectious Diseases (Notification) Acts. In addition to powers given to municipalities to make hospital and sanatorium provision for communicable diseases, the Act empowers the erection of emergency hospitals, which may be provided by taking any suitable land or any unoccupied building without prior agreement with the owner, subject to a subsequent adjustment of compensation. One municipality is given the right to recover from another all the costs of dealing with an epidemic which has been introduced into the former district through neglect of the medical officer of health, local board, or corporation of the latter. "Nuisances," again, have a wide definition, and include such conditions as overcrowded houses, furnaces which do not consume their own smoke, and any premises (whether inhabited or not) which are in a dangerous condition. The medical treatment of persons in a state of poverty is included in the duties of the local public health authority, and contracts for such treatment, providing "fair and reasonable remuneration for services rendered," have to be made by municipalities with the medical officer of health or with local medical practitioners. Other parts of the Act deal with local water-supplies and sewerage systems, and if properly administered should be of the greatest value for the prevention of water-borne infection. Public abattoirs are authorised, though no power seems to be conferred on local authorities to require them to be used or to abolish private slaughtering establishments.

It may be concluded from the Act that the Canadian Legislature does not share the traditional English objection to giving administrative authority to the expert. The local board of health established in every city is to appoint a medical officer of health as its executive officer; he is given security of tenure and is himself a member of the local board. A meeting of all medical officers of health in the province is to be annually convened by the central authority, the Provincial Board of Health. This body appears to combine functions which are exercised in this country both by the Local Government Board and county councils. At least four out of the six members are legally qualified medical practitioners, and the chief officer of health, who is *ex-officio* a member of the board, acts as its secretary and is its principal executive officer. Ten district officers of health act under the board's instructions in supervisory and administrative work throughout the province. This central health office has been given wide powers to make regulations and to act in place of local authorities, and it would seem to hold in its hand the whole sanitary future of the great area under its charge.

Vaccination Act.

The Vaccination Act of the Province of Ontario, also passed this year, requires infants to be vaccinated within three months, and a fine is imposed for non-compliance in the absence of sufficient reason, such as ill health or insusceptibility. A municipality may by proclamation require vaccination or revaccination of all residents who have not been vaccinated within seven years, and when small-pox is prevalent or is threatened the medical officer of health may exclude from any school or college a pupil who does not produce a certificate of succesful vaccination, revaccination, or insusceptibility. The provincial government arranges for vaccination through hospitals and dispensaries which receive grants from public funds. Such institutions are required to arrange for the attendance of a public vaccinator on stated days, and to undertake the supply of vaccine lymph to medical practitioners who require it. Domiciliary vaccination in Ontario is thus vaccination by private practitioners with lymph supplied at the public expense. Every municipality, however, is to appoint a public vaccinator to vaccinate at the public cost all poor persons who come to him for the purpose, and all other persons at their own expense. In the matter of vaccination the Ontario legislature has done well to depart widely from the English model. The new Act does not provide special means of exemption to the "conscientious objector," or invite each individual to avoid taking his share in the action which the State desires for the common good.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, Surgeon Hugh Bernard German has been permitted to withdraw from His Majesty's Naval Service with a gratuity (dated May 23rd, 1912).

The undermentioned Surgeons have been promoted to the rank of Staff-Surgeon to His Majesty's Fleet: Henry Woods, Harry Arthur Kellond-Knight, Alfred Berridge Cox, Douglas Duke Turner, Briton Smallman Robson, Bryan Pick, Norman Bremer Vickers Jacob, Alec Bedingfield Marsh, John Miller Gordon, John Duncan Keir, Leslie Charles Rowan-Robinson, Gerald Nunn, William Christian Baumgarten Smith, Thomas Edward Blunt, James McCutcheon, George Eric Hamilton, Walter Turner Haydon, William Lawrence Hawkins, and William Nichols Horsfall (dated May 23rd, 1912).

The following appointments have been notified:—Fleet Surgeons: E. C. Lomas to the *President*, additional, for Royal Fleet Auxiliary *Maine;* M. L. B. Rodd, to the Royal Naval Hospital, Haslar; C. Strickland, to the *Thunderer*, on commissioning; J. D. Hughes to the *St. Vincent*, on recommissioning; W. G. Axford to the *Lion*, on commissioning. Staff-Surgeons: T. E. Blunt to the *Merlin;* R. H. St. B. E. Hughes to the *St. Vincent* on recommissioning; G. O. M. Dickenson to the *Pelorus* on completing; and H. W. B. Shewell to the *Ganges*, for Shotley Training Establishment, temporarily. Surgeons: G. D. Macintosh to the *Thunderer* on commissioning; A. B. Cox to the *Lion* on commissioning; A. J. MacDiarmid to Plymouth Hospital (undated); H. E. Scargill, C. H. Symons, H. R. B. Hull, and George D. G. Fergussen to the *Vivid*, additional, for disposal; M. M. Melrose, A. B. Clark, G. B. Cockrem, and G. D. Macintosh to the *Victory*, additional, for disposal; C. M. R. Thatcher, E. St. G. S. Goodwin, and R. J. Barlee to the *Pembroke*, additional, for disposal; and D. Loughlin to the *Fisgard*.

ARMY MEDICAL SERVICE.

Colonel Louis E. Anderson to be Surgeon-General (dated May 4th, 1912).

Lieutenant-Colonel Bruce M. Skinner, M.V.O., from the Royal Army Medical Corps, to be Colonel (dated May 4th, 1912).

Lieutenant-Colonel Roger Kirkpatrick, C.M.G., from the Royal Army Medical Corps, to be Colonel (dated May 21st, 1912).

Colonel Stapylton C. B. Robinson is placed on retired pay (dated May 21st, 1912).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors (dated May 29th, 1912):—William R. P. Goodwin, William L. Steele, William Riach, James C. Kennedy, Arthur R. C. Parsons, and Eyre W. Powell.

Surgeon-General T. M. Corker has taken up duty as Deputy Director of Medical Services in the Sixth (Poona) Division of the Southern Army in India, in succession to Surgeon-General J. G. MacNeece, C.B., transferred to the Southern Command.

Lieutenant-Colonel H. Carr has been transferred from the Station Hospital at Jullundur to command the Station Hospital at Ambala Cantonment. Lieutenant-Colonel A. L. F. Bate has been appointed for duty at Preston. Lieutenant-Colonel R. J. Windle, physician and surgeon to

the Royal Hospital, Kilmainham, Dublin, has been placed under orders for service abroad during the coming trooping season. Lieutenant-Colonel M. J. Sexton has been appointed in charge of the Military Hospital at Wynberg, and to command the 22nd Company of the Royal Army Medical Corps in South Africa. Lieutenant-Colonel G. Wilson has taken over charge of the Military Hospital at Dover and has been appointed Senior Medical Officer of the South-Eastern Coast Defences. Lieutenant-Colonel E. G. Browne, at present serving at Delhi, has been selected for appointment as Honorary Surgeon to H.E. the Viceroy and Governor-General in India. Major F. G. Faichnie, medical officer in charge at Chelsea Barracks, has been placed under orders for service abroad during the coming trooping season. Major W. P. Gwynn has been appointed to command the station hospital at Karachi. Major J. Cowan has embarked for a tour of service in India. Major G. M. Goldsmith has been transferred from Thayetmyo, Burma, to Lebong, and appointed to command the Station Hospital. Major H. C. R. Hime has taken over charge of the Military Hospital at Fort George, Madras, and has been appointed Specialist in the Prevention of Disease. Major J. H. E. Austin has been transferred from the London District to Edinburgh. Major J. C. Connor has joined for duty at Wellington Convalescent Sanatorium, Madras Presidency. Major H. N. Donn has taken over charge of the Surgical Division at the Royal Victoria Hospital, Netley. Major R. H. Lloyd has been transferred from the Station Hospital at Ferozopore to Multan. Major F. Kiddle has been appointed in charge of the Military Families Hospital and Dispensary at Colchester.

Captains G. W. G. Hughes, J. E. Powell, and O. Ievers have been selected to attend the next promotion course at the Royal Army Medical College. Captain G. F. Sheehan has been transferred from Barrackpore to the Station Hospital at Cawnpore. Captain E. W. Powell has joined for duty at Kilworth. Captain T. J. Potter has taken up duty at Cairo as Specialist in Bacteriology. Captain J. L. Jones has embarked for a tour of service in India. Captain R. N. Hunt has arrived home on leave of absence from Egypt. Captain W. W. Browne, specialist in physical training, has been placed under orders for service abroad during the coming trooping season. Captain T. C. C. Leslie has been appointed to the Irish Command for duty. Captain A. D. Fraser has been transferred from Omagh to Londonderry. Captain R. Storrs has taken up charge of the Military Families Hospital at Portsmouth. Captain F. J. Stuart has been appointed Specialist in Dermatology and Venereal Diseases at Meerut Cantonment. Captain R. McK. Skinner has been appointed in charge of the Military Hospital at Fort Canning, Straits Settlements. Captain J. H. Graham has been transferred from Fermoy to Ballincollig. Captain H. V. Bagshawe has joined for duty at Sheffield.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel to be Colonel: Arthur Owen Evans (dated Nov. 21st, 1911).

Lieutenant-Colonel Sir David Semple, director of the Central Research Institute of India at Kasauli, has arrived home on leave of absence. The services of Lieutenant-Colonel A. O. Evans, civil surgeon at Maymyo Cantonment, Burma, have been placed at the disposal of the Home Department of the Government of India by H.E. the Commander-in-Chief. Lieutenant Colonel F. C. Pereira has been granted one month's privilege leave of absence.

Major T. Stoddart, civil surgeon at Mogok, has been appointed a First-class Civil Surgeon, in succession to Major E. R. Rost, reverted. Major N. P. O'Gorman Lalor has passed the lower standard examination in the Burmese language by the colloquial test. On return from privilege leave Major V. H. Roberts has been selected for appointment as Plague Medical Officer at Rohtak. Major C. E. Williams has been granted three months' extension of furlough by the Secretary of State for India.

Captain H. W. Illius has embarked for India. The services of Captain I. M. Macrae have been placed at the disposal of the Administration of the United Provinces of Agra and Oudh for appointment as Superintendent of the Central Prison at Lucknow. The services of Captain H. M. B. Watts have been placed at the disposal of the Government of India, Department of Education, on relinquishing the appointment of plague medical officer at Lahore. Captain H. C. Buckley, plague medical officer at Rohtak, has been transferred to Sialkot. Captain W. W. Jeudwine, officiating civil surgeon at Simla West, has been granted two years' leave of absence home from India. Captain C. W. F. Melville, senior medical officer, Abor Expeditionary Field Force, has returned to India on completion of the campaign and resumed his appointment as Medical Officer, 9th Hodson's Horse. Captain C. A. Gill has taken up duty as officiating Deputy Sanitary Commissioner in the Punjab, in succession to Major H. M. Mackenzie, transferred. H.E. the Governor of Bombay has been pleased to appoint Captain H. E. Stanger Leathes to act as personal assistant to the Surgeon-General with the Government of Bombay, in succession to Captain J. L. Lunham.

Lieutenant J. Lynn has been appointed Residency Surgeon at Hyderabad.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Captain John H. P. Graham to be Major (dated April 11th, 1912). Cadet Lance-Corporal Ludwig Seiberg Benjamin Tasker, from the University of London Contingent, Officers Training Corps, to be Lieutenant (on probation) (dated April 30th, 1912).

TERRITORIAL FORCE.

Royal Army Medical Corps.

South Wales Mounted Brigade Field Ambulance, Royal Army Medical Corps: Captain James McK. Harrison to be Major (dated March 25th, 1912).

1st Wessex Field Ambulance, Royal Army Medical Corps: Captain Alexander W. F. Sayres to be Major (dated March 22nd, 1912).

Attached to Units other than Medical Units.—Lieutenant-Colonel and Honorary Surgeon-Colonel Thomas Fort resigns his commission and is granted permission to retain his rank and to wear the prescribed uniform (dated May 22nd, 1912). Captain George Gordon resigns his commission (dated May 22nd, 1912). Vincent Howard (late Lieutenant, Buckinghamshire Battalion, The Oxfordshire and Buckinghamshire Light Infantry) to be Lieutenant (dated May 29th, 1912).

ARCHIVES DE MÉDECINE NAVALES.

In the April number of the *Archives de Médecine et Pharmacie Navales* we find an article by Dr. Violle, médecin de 2de classe (surgeon) in the French navy, recounting his experiences of the sterilisation of water by ultra-violet light on board a torpedo-boat destroyer. The apparatus was, he thought, terribly expensive, was far too fragile to stand the shocks and strains to which it was exposed at sea, and the voltage of the destroyer circuit (75 volts) was too low to elicit the best efficiency of the quartz lamp which required 110 volts. Yet it gave encouraging results. Though sporing bacilli and moulds survived, bacillus coli was no longer found in the water if it had passed slowly through the apparatus while the lamp had been continuously alight. Dr. Gloaguen, médecin de 1re classe (staff surgeon) of the French navy, writes on preparation for battle. As 386 men were wounded on board the *Rurik* of the Russian navy in a few minutes he thinks all guns' crews must be trained to help the lightly wounded below, while the severe cases are left to the much more highly trained men of the stretcher parties. These latter he trains very carefully himself, and particularly tries to make them learn how the pipes run that bring fresh water to the dressing stations in the hope that they may be able to repair damages to them in action. His stretchermen are each instructed to bring to the dressing station, at general quarters, some particular part of the equipment, and so all arrives very punctually. He has a specially well-trained stretcherman, one of the ship's stewards staff, on duty in the conning tower. Like Dr. Bastier, whose paper was abstracted in THE LANCET of Jan. 15th, 1910, he advocates keeping tanks of compressed air in all underwater compartments to blow out the foul gases which, when shells burst near by, will, if not instantly removed, poison all the men on duty. The official notices published at the end of this number report, in consequence of their services during "the epidemics in the *Marceau*, at Tunis, and at Toulon," at the dates noted, three Fleet-Surgeons promoted, one with the "epidemic medal" in vermilion; a Staff-Surgeon gets the Legion of Honour; two Surgeons get the "epidemic medal" in silver;

while other officers get "an inscription in the Note-book," which we suppose to be probably an equivalent to the very rarely conferred honour, "the approval of their lordships," in the British Navy. The nature of the epidemics and the services of the officers are unfortunately not detailed to us.

Correspondence.

"Audi alteram partem."

ANGINA ABDOMINIS.

To the Editor of THE LANCET.

SIR,—Heberden knew an extra-pectoral form of angina, but Leared was, I believe, the first to call attention[1] to the group of cases which we now speak of as "angina abdominis," referring to the condition as "disguised heart disease." A feature in some of these cases, to which I called attention in my Lumleian lectures, 1910, is the association of jaundice with the abdominal pains leading to the diagnosis of gall-stones In one of my cases an operation was performed but no stones were found.

I am, Sir, yours faithfully.

Oxford, May 24th, 1912. WILLIAM OSLER.

PREVENTION OF CHILD MORTALITY: OVERLAPPING OF EFFORT.

To the Editor of THE LANCET.

SIR,—We are informed by a circular issued last week from Glasgow that a proposal is on foot to form a National Association for the Prevention of Infant Mortality and the Promotion of the Welfare of Children under School Age.

We desire to call attention to the fact that a national organisation of this description is already at work. This body is a special department, known as the Association of Infant Consultations and Schools for Mothers, of the National League for Physical Education and Improvement. The work which has been carried out by the League since its formation in 1905 includes (1) the coördination and extension of already existing health-promoting agencies and the formation of others where none exist; and (2) the promotion of fresh legislation where necessary.

Since its constitution in December, 1911, the special department of the League concerned with child welfare has been at work on lines to a great extent identical with those set forth in the circular already referred to. It has secured the affiliation of 50 societies in all parts of the kingdom, comprising voluntary associations, municipal infant consultation centres and schools for mothers, and other institutions for promoting the welfare of mothers and infants and of young children generally up to compulsory school age. It is further in close touch and constant communication with the rest of these societies. The general and executive committees, on which the medical profession is largely represented, are on a purely democratic basis, and the members are all active workers on the various institutions they represent.

Already a considerable amount of useful practical work has been done. A great deal of literature (such as case-papers, weight-charts, health leaflets, health posters, &c.) has been prepared by experts and published at a cheap rate for the use of those who are engaged in this work; statistics have been collected, and information, advice, and help have been given in starting societies all over the country. One exhibition illustrative of this admirable welfare work has been held and another is in course of preparation; and, finally, owing to the propagandist efforts of the League, the number of local health societies has been doubled within the last year. Duplication of effort and over-lapping are to be deprecated. It is greatly to be hoped that before this new association comes into being steps may be taken to ensure that there be no loss of energy or power through preventable over-lapping in dealing with a question of such vital importance to the well-being of the whole nation.

Yours, &c.,

W. BOYD CARPENTER.
LAUDER BRUNTON.
JOHN TWEEDY.

Tavistock-square, W.C., May 21st, 1912.

[1] Medical Times and Gazette, 1867, I.

DIET AND INOPERABLE CANCER.

To the Editor of THE LANCET.

SIR,—In January, 1911, you published a letter from me in which I asked that some inoperable cases of cancer might be sent to my hospitals with a view to testing the effect of one variety of the uric-acid-free diet on their disease. I also undertook to give an account of all the cases I was able to accept. I asked that the cases sent should have a prospect of not less than six months of life. Of the cases sent to me, practically none fulfilled even these minimum conditions. I took into the Metropolitan Hospital three, and into the Royal Waterloo Hospital six cases, but none of these gave any real hope of success or were worth careful watching. I merely took them in to show them the diet and let them go home and continue it there, in the hope that if, for any cause, the rate of progress of their disease slowed down the diet might get time to help them. I refused an equal or slightly larger number as being quite hopeless and having only a few weeks to live. One of the cases in the Metropolitan Hospital that appeared most hopeful was a woman sent me by Mr. L. B. Rawling, of St. Bartholomew's Hospital, with an inoperable cancer of the right breast. She was supposed to have an expectation of life of several years, but our attention was soon directed to a pain in the left hip, and the rays showed that she had a secondary deposit there; so, like the others, she was merely shown the diet and allowed to go home.

Of the cases at the Waterloo Hospital, one advanced uterine case died after some two months, diet, of course, having no effect, though it certainly lowered blood pressure and helped to diminish pain. One refused to continue the treatment and went home, and the others went home to continue the diet, having learned to take a certain quantity of nuts and fruit in addition to the beginner's diet. No supervision, however, is possible in such cases. Two uterine cases, not entered in my notes, which have been carefully examined by my colleagues at the Royal Waterloo Hospital with a view to their treatment by diet, refused treatment and went home saying that they would rather die with a full inside than an empty.

A month or two after my letter was published Dr. T. J. Horder wrote[1] and offered to place some of the cases under his care at the Cancer Hospital at my disposal as regards their diet, and I accepted this offer.[2] On going into the details of the diet, however, Dr. Horder came to the conclusion that most of his male patients would leave the hospital rather than go on such a diet, and so it ended in his placing nine women under my care; and Mr. C. P. Burd, of Upton-on-Severn, sent me a case which I obtained leave to take in at the Cancer Hospital, and of each of these cases I will give a short note.

CASE 1, June 15th.—A female, aged 36. Carcinoma uteri and hemiplegia; a bedridden hopeless case. Blood decimal only 0·65. Died without getting on to diet.

CASE 2, June 15th.—A female, aged 72. Abdominal growth, nature uncertain. I did not treat her.

CASE 3, June 15th.—A female, aged 64. Tumour of right orbit. Given aspirin and other drugs to relieve the pain which was severe. Died in one or two months. Never got on correct diet.

CASE 4, June 15th.—A female, aged 45. Malignant mediastinal glands and small pleural effusion; hopeless case. Went home July 6th.

CASE 5, June 15th.—A female, aged 47. Tumour of anterior thoracic wall. Got on to beginner's diet. Was taken off this diet by Dr. Horder while I was away in September, I believe, because she was losing weight and the local condition was thought to be worse. She is still in the hospital and has had various treatments, but there has been no marked alteration on any diet.

CASE 6, June 15th.—A female, aged 47. Carcinoma mammæ. Got on to beginner's diet for a month or two but missed her tea greatly and suffered from colds and minor ailments. In October, owing to grumbling and loss of weight, she was given some boiled fowl once a day. Had serum injections, rays, and other treatment. Is still in hospital; not much change; not on complete diet.

CASE 7, June 15th.—A female, aged 49. Advanced carcinoma of left breast, seven years' duration; much chronic arthritis; worse the last 12 months; father has chronic rheumatism. Blood decimal 0·75. By August she had got on to partial beginner's diet with some tea; she was now able to kneel in chapel for the first time for 20 years. October: Still tea once a day; growth no change; arthritis much better. December: Local conditions showed decided improvement; has some fluid in the abdomen (? recurrence there). Has never been on complete diet but her uric acid intake has been greatly reduced; still some tea. Is still in hospital. This is a very chronic case and diet would have a chance here if done properly, but the patient's conduct when outside the hospital and her statements as to the food she takes cannot be depended upon.

CASE 8, July 24th.—A female, aged 17. Carcinoma of rectum; colotomy has been performed; a hopeless case. Went home July 31st.

[1] THE LANCET, April 8th, 1911.
[2] THE LANCET, April 15th, 1911.

CASE 9, Nov. 13th.—A female, aged 67. Malignant tumour of abdomen; removal was attempted in May last, but found to be impossible. Has very marked rheumatoid joints (a large percentage of the cases of cancer sent to me had well-marked signs of chronic arthritis). This patient was too bad to have her diet altered in any way and she died on Dec. 31st.

CASE 10, Oct. 9th.—A female (Mr. Burd's case). Carcinoma of cervix, advanced, inoperable. Had a severe hæmorrhage seven weeks ago. This patient got on to beginner's diet and took some nuts every morning, which helped to regulate her bowels and enabled her to get on with a diminished dose of cascara. She went on fairly for a time and gained a little weight even on this "low" diet, but she had much pain and took aspirin constantly for it. On Jan. 31st, 1912, she had another severe hæmorrhage followed by increasing debility and heart failure (partly due to the aspirin). She died in February, 1912, having had some meat since her last hæmorrhage.

It will be seen that there is here not one single case which is in any way comparable to the private cases with which I wished to compare it. None of the cases in which their disease gave time for the diet to act ever really got on to it, and the cases in the Cancer Hospital all had some tea, fish, fowl, and meat at intervals; none of them ever got on to the complete nut and fruit diet given below. The private cases with which I wished to compare them got on a completely uric-acid-free diet in a few weeks and have remained on it ever since. They had as few drugs as possible, often for long periods none.

I do not venture to say that my private cases were *propter*, but they were certainly *post*, that is to say, the diet did no harm. Besides, similar cases have been reported by others, and all now acknowledge that some cases of undoubted carcinoma have got well. I merely suggest that diet may have had something to do with this result, and I have been seeking to duplicate these experiences in hospital cases. My chief reason for suspecting that they might be *propter* is the undoubted fact that those nations all over the world that take least uric acid or xanthin in their food have notoriously least gout and rheumatism and also least cancer, and that variations in the quantity of these poisons ingested account for the very marked differences between the largest and smallest cancer incidence in the United Kingdom.

I now see that I was looking for what I wanted in the wrong class; hospital patients are too ignorant and prejudiced to give this diet a fair trial in hospital, and they are too ignorant to provide what is required at home. If my cases are to be duplicated it must be among the richer and better educated classes.

It takes at least from 9 to 12 months to cure gout and rheumatism by diet, and obviously only slow growing cases of cancer, seen early, give any chance of success. In Case 7, whose arthritis got better in two months, this result was only in part due to the diet changes and in part to the warm season and to the increasing fluid in her abdomen which caused debility with increased alkalinity and solution of urates throughout the body. Nevertheless, if every private case could be put on a nut, fruit, and biscuit diet as soon as the nature of the disease was beyond doubt, we should soon see whether relapses on this diet were less frequent than among those left on ordinary diet in hospitals.

There is a further problem I should have liked to work out had it been possible—namely, whether cases of cancer will do better if treated like acute gout or rheumatism on a form of uric-acid-free diet which is rather low in proteid and with the administration of solvents of uric acid (several of the above cases had aspirin); or if they will do better when treated like cases of chronic rheumatism or of phthisis on a very full proteid diet, and with tonics and stimulants which act as retentives of uric acid. I have generally worked on the former hypothesis, but the experience of the Cancer Hospital, where there is evidently a strong belief in feeding up and gaining weight, seems to be in favour of the latter, and the good effects, in some cases, of radium and rays which apparently act as tissue stimulants are also, perhaps, in favour of it. On the other hand, cancer is notoriously a disease of the rich and highly fed, though this may be due to introduction of poisons, and quite apart from mere excess of proteid, while tubercle flourishes under exactly the opposite conditions—poverty and starvation.[3]

I believe as strongly as ever that the diet which prevents cancer will in some cases be found to cure it, but cases similar to the above give practically no chance of demonstrating this.

The fruit, nut, and biscuit diet for an adult of 130 lb. would contain nuts (chiefly hazels, walnuts, pine kernels, and Brazils) about 8 oz. (beginning with 1 or 2 oz. and gradually increasing), fresh fruit almost *ad lib.*, some dried fruit after soaking for about 24 hours in cold water. All these are uncooked, but if mixed with cream, honey, &c., many most delightful dishes can easily be made (e.g., ground-up nuts, mashed fruit with cream sweetened with honey). The biscuits (now to be obtained from Messrs. Shearn, of Tottenham Court-road) supply so much of the necessary proteid as has not been got from the nuts and fruit, or rice pudding strengthened with dried milk can be substituted for the biscuit. Thus we get—

Quantity.		Substance.		Proteid in grains.
8 oz.	.....	Mixed nuts	.....	544
24 ,,	.....	Fresh fruit	.....	192
4 ,,	.....	Dried fruit	.....	48
7 ,,	.....	Special biscuits	.....	476

—a total of 1260 gr. of proteid, a full diet for a patient of 130 lb. weight.

I use beginner's diet—in which there is much white of egg to replace fish, and curd, cheese, and dried milk to replace meat—as a stepping-stone to the fruit, nut, and biscuit diet, and few of the above cases even got on to the beginner's diet completely.

I desire to tender to all those who sent me cases my best thanks, and especially to Dr. Horder for what he did at the Cancer Hospital, as it was obviously no fault of his that the cases placed at my disposal proved to be unsuitable. As, owing to the ignorance and prejudice of the patients, only such and similar cases appear to be available, I conclude that it is useless to attempt to treat a larger number. My late experiences may therefore be said to leave the question where it was, but such indications as I have been able to observe convince me that it is a trail well worth following. My own intention is to pursue it indefatigably, but in the class which is by training more amenable to discipline, and therefore more obedient and intelligent.

I am, Sir, yours faithfully,

Brook-street, W., May 17th, 1912. ALEXANDER HAIG.

[3] See Brit. Med. Jour., 1911, vol. ii., p. 1678.

MERCURIO'S OR WALCHER'S POSITION.

To the Editor of THE LANCET.

SIR,—Dr. Herbert Spencer writes to correct what he terms my "two slips" in the review of Dr. Davis's book on "Operative Obstetrics." He must, however, excuse me if I now reply by correcting his slips. I wish first to state again that in my opinion the so-called position of Mercurio and that of Walcher are not the same thing, and should not be confused; and in his letter Dr. Spencer rightly describes the position devised by Mercurio for fat women. It is quite true that the "hanging legs" or Walcher's position was illustrated and described by Scipione Mercurio. He, however, was not the first to describe it; this honour belongs to the Spanish-Arabian writer on obstetrics and surgery, Abi'L Casem, commonly called Albucasis. If Dr. Spencer will refer to the edition of his work Altasriph (Collectio, sive in ordinem reductio), by J. Channing, entitled "Albucasis de Chirurgia Arabice et Latine," 1778, he will find on page 341, liber 2, section 77, the following sentence. Albucasis is describing the use of the so-called "cochleæ" for dilating the neck of the womb, and with regard to the position of the woman he says: "et quando uterum apirire volueris fac super lectum sedere pendulis pedibus ejus," an extremely good description of the hanging legs position, illustrated and described it is quite true by Mercurio, but nearly 500 years later. Albucasis died about 1122. If any name other than that of Walcher is to be associated with this position it should be that of Albucasis, and certainly not that of Mercurio. My only slip, therefore, for the correction of which I am much indebted to Dr. Spencer, was in saying that the position of Mercurio for fat women was illustrated first in the edition of his book published in 1642, when in reality it appeared in the first edition. Dr. Spencer says this was published in 1596; perhaps he has the first edition, if so he is to be congratulated. Other authorities, however, give varying dates—Fasbender says 1595, Hirsch and the Surgeon-General's Catalogue both give the date as 1601. In all probability the first edition of the work "La Commare," not as Dr. Spencer spells it "Comare," which ran through 17 editions and, I believe, appeared originally

in three volumes, was published at varying intervals during the years 1595 to 1601.

I am, Sir, yours faithfully,

May 25th, 1912. THE WRITER OF THE REVIEW.

THE BED ISOLATION OF CASES OF INFECTIOUS DISEASE.

To the Editor of THE LANCET.

SIR,—I have read with interest the discussion in your recent issues on the above subject. I have not, however, come to any definite conclusion on the subject. At the same time I would like to ask if those who are praising the claims of the system have considered the fact, and given it its share in the results attained, that cases of infectious disease are temporarily immune to other infectious diseases. Thus, a case of enteric has less chance of catching small-pox than it would normally, *ceteris paribus*; no one usually sees two infectious diseases in the same patient at the same time.

I am, Sir, yours faithfully,

Lahore, May 5th, 1912. A. G. NEWELL, M.D. Glasg.

RADIUM EMANATION IN MINERAL WATERS.

To the Editor of THE LANCET.

SIR,—I notice that in a paper with the above title by Mr. T. Pagan Lowe appearing in THE LANCET for April 20th, p. 1051, credit has been given to Dr. W. H. B. Aikins and myself for certain observations on the effects of radio-active waters. The credit for these observations should be given to Dr. William Armstrong, of Buxton, England, who published them in the *British Medical Journal* for April 29th, 1911, and to whom credit was given by us in our paper, which appeared in the *Canadian Practitioner and Review* for August, 1911.—I am, Sir, yours faithfully,

Toronto, May 15th, 1912. FREDERICK C. HARRISON.

*** Dr. Harrison confirms the claim made by Dr. Armstrong in THE LANCET of May 4th, 1912, p. 1226.—ED. L.

THE TREATMENT OF RODENT ULCER.

To the Editor of THE LANCET.

SIR,—Referring to my paper in THE LANCET of May 18th on the above subject, my attention has been drawn to the fact that I have suggested to the minds of some readers that rodent ulcer always recurs after treatment by the X rays or radium, or zinc ions.

I hasten to assure any who have gained such an impression from reading my paper that I very much regret having raised an idea so erroneous. I thought I had made myself sufficiently clear on this point, for in the last paragraph on p. 1333 I stated: "It is a matter of common knowledge among radiologists that numbers of complete and satisfactory cures of rodent ulcer have been made by all of the first three methods (viz., the X rays, radium, and zinc ionisation) I have mentioned." Further on in the same paragraph I said: "I have not come here this evening to decry the use of methods that have served us well in the past, but I am sure it will be agreed that we do get a certain number of recurrences no matter how carefully we do our work. It is with the object of reducing the number of these recurrences that I am going to ask you to give a more general trial of a method that seems to promise well." As there may be others than those from whom I have heard who have also mistaken my meaning, I am glad to have this opportunity of making my positon quite clear.—I am, Sir, yours faithfully,

Harley-street, W., May 22nd, 1912. REGINALD MORTON.

THE ROYAL SANITARY INSTITUTE.—Among the Fellows of the Royal Sanitary Institute who have been elected recently are Dr. Alfred Greenwood and Dr. John T. C. Nash. Colonel Guy C. Jones (Director-General of the Medical Service of the Militia of Canada), Dr. John F. Johns, Dr. Angus McDonald, Dr. G. D. Porter, and Dr. Norman Wilson have also been elected members of the institute.

CHOLERA IN ROME.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Rome, May, 1912.

The Public Health Department.

WITHOUT attempting to go deeply into the matter, I did not fail, while attending the International Congress on Tuberculosis, to make some inquiries as to the prevalence of cholera which prevented our meeting last September. It was not officially stated that the Congress was postponed on account of the cholera, but no doubts were entertained as to the real cause, particularly as other congresses were also abandoned or relegated to some more propitious moment. The fact was that cholera had been threatening for some time. Already, in 1910, some cases were reported; 29 cases resulting in 17 deaths are on the official records, and it is not certain that every case was duly reported. To deal with such matters there is at Rome a Sanitary Department or Bureau of Hygiene. Professor Tito Gualdi is its chief, and holds a position somewhat analogous to that of a medical officer of health in England. His department is subdivided into four offices. The first attends directly to the sick and organises for the help which they need and are entitled to receive. The second office watches over the schools, and especially over the free meals given to the children in all the elementary schools. That the children have to be fed is now a well-established principle throughout Rome. The third office deals with infectious diseases, the isolation of the patients, and disinfection of the premises. The fourth office controls the inspectors of nuisances, the food-supply, the shops and markets.

There are at Rome four hospitals reserved for the isolation of infectious cases. All that could be done for the cholera patients was to isolate them and send the people out of the house in which the case had occurred. But they came back again as soon as the house had been disinfected. In many instances it was quite obvious that the one effective measure would be the total destruction of the terribly over-crowded and insanitary dwellings in which so large a proportion of the cases occurred. In Rome, Milan, and Turin there are quarters for the poor of modern construction. There, in spite of continued overcrowding, sanitary conditions are much better and these new quarters have not suffered from cholera. But in Naples, in the older parts of Rome, at Genoa, at Livourna, they have not demolished the old slums. There is no money forthcoming, even for this most urgent work. At Naples four persons at least on an average live in one room in such districts, and there the cholera could not be checked. It was from Naples that the disease was conveyed to many other towns. There was cholera there in 1910, and it also came to Rome in that year, but there were only 29 cases notified, resulting in 17 deaths. In 1911 the danger seemed greater. The first case occurred in February, the victim being a young girl who came from the naval station of Taranto. But nothing followed until the ensuing month of May, and this time the patient was a young man. He had not come from any infected town, and all that could be ascertained was that he had eaten eggs which had been sent from Naples. He lived on the other side of the Tiber, near the asylum where, four months later, many cases occurred. For the moment, however, nothing happened. Then there was a third case, and in quite a different part of the town. This time it was a young American lady who had recently arrived at Rome from Naples. Still nothing alarming happened. A few more isolated cases were notified, and the disease did not assume an epidemic form till the end of July. Then, on the banks of the Tiber, in the district traversed by the Via Giulia, there was an outbreak affecting a good many people living there. A second local epidemic followed in quite another part of Rome known as the Macao and S. Lorenzo district. There was a third outbreak in the very heart of the city in the narrow old streets that run between the Piazza Colonna and the Pantheon, and finally there were clusters of cases in rural outlying districts. Altogether, in 1911, the cases notified numbered 297, followed by 163 deaths. Though this may seem a large number of cases it is not very alarming when taken in comparison with the population. Thus, in 1910, the number of deaths from tuberculosis registered at Rome was equal to 21·07 per 10,000

of the population; from the zymotic diseases 17·30, and from cholera 0·30. In 1911 the deaths from tuberculosis fell to 20·05 per 10,000, from the zymotic diseases to 11·54; but from cholera they rose to 2·96. Nevertheless, and considering only the above figures, it would appear as if the health of Rome improved as the cholera increased. The total deaths in 1910 from tuberculosis, zymotic diseases, and cholera were 38·67 per 10,000; and, though in 1911 the cholera cases increased tenfold, the total from these three causes fell to 34·55 per 10,000.

No satisfactory explanation is given as to the principal channels of cholera infection. Milk contamination is supposed to have been the cause of the first epidemic outbreak and of the 57 cases that occurred in the lunatic asylum. In any case, the first to sicken were persons employed in a dairy. Then in the Pantheon district a large family had all their milk from a particular dairy. No one was ill except the one member who drank some of this milk before it was boiled. In other cases it was also noticed that only those who drank unboiled milk contracted cholera. On the other hand, although many samples of milk were bacteriologically examined, the comma bacillus was never found. Nor was there the slightest evidence that the water-supply had been contaminated.

But for the intense poverty, the survival of slums and the dirt that prevails therein, no great fears would be entertained. In the present state of affairs there are many quarters where epidemic disease can easily spread. Yet what can be done? A law against overcrowding is no use unless more suitable dwellings can be provided. As it is, the law does fix the number of persons who may live in a newly constructed house. The law in this case stipulates for about 1000 cubic feet per inhabitant, but the poor cannot pay the rent of such spacious dwellings. The re-housing schemes are making but very slow progress, and if the cholera scare results in stimulating this movement, it may end in doing more good than harm.

CONGRESS OF THE GERMAN SURGICAL ASSOCIATION.

(FROM OUR BERLIN CORRESPONDENT.)

(Concluded from p. 1370.)

The Blood in Cachexia Thyreopriva.

Professor KOCHER (Berne) said that he had described four years ago a certain condition of the blood which he at one time believed to be characteristic of Graves's disease, but which afterwards proved to be present also in myxœdema. The difference between these morbid conditions, however, was that the coagulation of the blood was retarded in Graves's disease, but accelerated in myxœdema, so that a differential diagnosis was possible by an examination of the coagulation. This was especially important because cases of alleged Graves's disease were sometimes in reality masked myxœdema, which might be benefited by the administration of iodine. In doubtful cases myxœdema and Graves's disease might be distinguished by a cautious administration of iodothyrin, the condition of the blood becoming normal under this treatment in myxœdema but worse in Graves's disease. These facts led Professor Kocher to believe that myxœdema depended on hypothyroidism and that Graves's disease depended on hyperthyroidism.

Dr. MEISEL (Constanz) drew attention to the circumstance that remarkable pigmentation sometimes occurred in Graves's disease; he was of opinion that it was caused by a certain relation between the thyroid gland and the suprarenal glands. He had also sometimes observed cardialgia, which became worse under the administration of adrenalin, but improved under sodium phosphate.

Operations on the Lungs.

Professor CLOETTA (Zürich) reported experiments which he had made on the respective effects of the use of rarefied air and compressed air (the so-called Ueber- und Unterdruck-Verfahren) in operations on the lungs. Contrary to the opinion that both proceedings were of equal value, he had found by measuring the blood pressure in the right ventricle, the pulmonary artery, and the carotid artery that the circulation was much more interfered with by the use of compressed air, and that with rarefied air only one-third of the power was necessary to obtain the same degree of inflation of a lung as with compressed air. With rarefied air the inflation was caused by elastic traction, but with compressed air by an increase of the pressure within the pulmonary tissue. The latter condition caused disturbance of the circulation within the lung, thereby affecting the right ventricle. In operations of long duration rarefied air should therefore be used. The favourable results obtained in tuberculosis of the lung by creating an artificial pneumothorax were due to an improvement of the circulation within the lungs.

Professor KAUSCH (Schöneberg) reported a series of cases of Freund's operation for tuberculosis of the apex of the lungs. He said that up to the present time nine cases of chondrotomy of the first rib had been performed, of which five were by himself. In two of the cases under his care the disease of the lungs had extended below the second rib, so that only temporary amelioration was obtained. The other three patients were considerably improved, and as they were still alive three or four years after the operation they might even be considered as having recovered. The number of cases was, however, too small to allow the formation of a definite opinion on the subject, but it had been ascertained that the operation was harmless, and that the condition of the lungs was not made worse by the mobilisation of the rib. No case ought to be operated on when the tuberculosis had extended below the second rib.

Dr. WILMS (Heidelberg) spoke on the subject of retraction of the lungs in tuberculosis and its treatment by resection of small pieces of the ribs. He said that surgical intervention was indicated especially in chronic cases, where, notwithstanding retraction of the thorax and shrivelling of a lung, hæmorrhage and cough with abundant excretion persisted. He recommended the removal of small pieces of the ribs. The more extensive was the tuberculous process in the lungs the more cautiously must the operation be performed, and therefore it should be conducted in two or three stages at proper intervals, so as to allow the lung to accommodate itself to the new size of the thorax each time after the resection of a rib. The operation was, as a rule, obviously successful, cough and secretion disappearing.

Dr. TIEGEL (Dortmund) read a paper on Drainage of the Thorax for Infection of the Pleura after Operation. He said that the most remarkable symptom of infection of the pleura as a sequel to operations was the abundant exudation into the pleural cavity, which mechanically compressed the lung, and thus increased its liability to pneumonia. The exudation was also a good nutrient medium for bacteria, and compressed the circulation within the lungs. Post-operative exudation should therefore be at once treated by draining the thorax with a valve drain.

Professor SAUERBRUCH (Zürich) showed three patients on whom he had operated for severe injuries of both the thorax and the abdominal organs, performing thoracotomy and laparotomy. The indications for the operation were severe hæmorrhage and pneumothorax. The operation was performed under compressed air, and the wound in the thorax was closed by sutures without drainage. By radiograms he showed that the ribs had gradually recovered their normal position so that the intercostal spaces had become again as broad as before. He afterwards discussed the subject of ligature of the pulmonary artery for bronchiectasis, an operation which produced a shrivelling of the pulmonary tissue.

Dr. ANSCHÜTZ (Kiel) read a paper on resection of the diaphragm for a malignant growth within the abdomen, which had affected that organ. He advised the removal of as much as possible without having regard to the difficulties of closing the wound, which according to him might be done by suturing neighbouring organs, liver or spleen, into the fissure.

Operations on the Kidneys.

Professor KÜMMEL (Hamburg) mentioned that anuria had been relieved in acute infectious diseases, in various toxic conditions, and in eclampsia by decapsulation of a kidney. In acute purulent nephritis he had performed the same operation as an alternative to nephrectomy. Decapsulation was performed in 11 and nephrectomy in 17 instances. Acute purulent nephritis must always be operated on, recovery by spontaneous discharge of the pus being very rare. With respect to chronic nephritis, he distinguished two forms, one of them being a nephralgic form, on which he had operated in 13 instances, performing 4 decapsulations and 13 nephrectomies. One patient survived for several years and the others were relieved. The other form of chronic nephritis

was the hæmorrhagic one, which was often difficult to distinguish from malignant growth, and in which an operation was always indicated. Professor Kümmel said that he had performed decapsulation in 26 cases of Bright's disease. One of these patients recovered completely, while in others a satisfactory influence on anuria and uræmia was observed.

Dr. RENNER (Breslau) discussed the definitive results of operations on the kidney. He said that of 29 cases of malignant growth for which nephrectomy had been performed at periods varying from three and a half to five years ago, only five were still alive.

Professor VON HABERER (Innsbruck), speaking on the question of exploratory nephrotomy, uttered a warning against a too frequent resort to this procedure. He said that he had observed severe hæmorrhage after exploratory nephrotomy for suspected nephrolithiasis, the patient recovering after the performance of nephrectomy; in addition to hæmorrhage the kidney showed extensive infarction, so that its power of fulfilling its function had been practically destroyed. The indications of nephrotomy ought to be limited, and when it was considered to be necessary a transverse incision should be made in preference to a longitudinal one.

In the discussion Professor ISRAEL (Berlin) said that he had had the same experience in purulent nephritis as Professor Kümmel. In hæmorrhage combined with colic an incision with plugging gave good results. As regards Bright's disease, he declared that he was rather sceptical, because only some disagreeable symptoms could be ameliorated. The ultimate results in malignant growths of the kidney were better than reported by Dr. Renner; out of 130 cases Professor Israel had 30 in which the patients were still free from relapse more than five years after the operation.

Operations on the Stomach.

Professor RIEDEL (Jena) reported the results of operations for gastric ulcer of the lesser curvature of the stomach. The method consisted in a transverse resection of the stomach; 18 patients operated on in this way during the period 1901–1908 remained permanently well. In 16 cases the operation was primary; in one case an excision had previously been performed, but severe hæmorrhage came from a new ulcer one year afterwards. In another patient gastro-enterostomy had been previously performed, but a new ulcer of the anterior wall had occurred.

Dr. A. KOCHER (Berne) gave a report of 80 cases of gastric ulcer operated on during the period 1898–1911 in the university clinic. He said that for the differential diagnosis between ulcer and cancer Gluczinsky's test proved very valuable. In 70 cases gastro-enterostomy was performed with a mortality of 1 per cent.; 64 of these patients were examined five years after the operation; 50 were found to be quite well; 10 complained only of insignificant troubles; 2 were in an unsatisfactory condition and laparotomy was performed on one of them; and 2 had died from cancer. The function of the stomach was as a rule performed fairly well.

Professor PAYR (Leipzig) reported 34 cases of ulcers in which resection had been performed, with two deaths. He said that resection should be the rule for ulcers with callous edges.

Dr. HAUDEK (Vienna), speaking on the radiological diagnosis of diseases of the stomach, said that a considerable hour-glass contraction and impaired motility of the stomach so that it was not completely emptied after 12 hours were decided indications for an operation. Both of these symptoms were made visible by radiography.

Professor SALZER (Vienna) read a paper on Peritonitis caused by Diplococci—a morbid condition observed by him almost exclusively in young girls.

Operations on the Knee-joint.

Professor PAYR (Leipzig), speaking on the subject of mobilisation of ankylosis of the knee-joint by operation, said that in fibrous ankylosis all the cicatrices and indurations were cut away, not even sparing the affected crucial ligaments. In osseous ankylosis a semicircular resection was performed by two lateral incisions, and a longitudinal flap of fascia with some fat was interposed; the wounds were then sutured. For the after-treatment he recommended extension. In three of the cases treated by him the result was excellent, in three it was fairly good, and in four it was unsatisfactory because a new osseous ankylosis was formed. The operation was contra-indicated in cases of atrophy of the extensor muscles or of continuance of the primary disease, and was inadvisable for elderly patients.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

National Health Insurance Commission.

Mr. H. Wade Deacon, the chairman of the committee of the Royal Infirmary, has been invited to become one of the two representatives of hospitals on the National Health Insurance Commission for England. Mr. Deacon has also been chairman of the committee of the David Lewis Northern Hospital and of the Liverpool Voluntary Aid Council. His experience in hospital management has comprised a wide field of useful work.

University of Liverpool.

The Council, on the recommendation of the Senate and the Faculty of Arts, has appointed Dr. Alfred Holt as reader in physical chemistry at the University. The readership is an honorary post, which has been created in appreciation of Dr. Holt's distinction in his subject, and there is no doubt that the department of chemistry will be strengthened by his coöperation, and by the association of his name with its staff. Dr. Holt has published a large amount of valuable research in his subject. The University is to be congratulated upon the new member of its staff, especially because the appointment associates the name of Holt once more with the University and in a new capacity.—Professor F. G. Donnan, Muspratt professor of physical chemistry in the University of Liverpool, who was recently nominated for the chair of chemistry at University College, London, in succession to Sir William Ramsay, has decided to decline the invitation and to remain in Liverpool.

Verminous Children in Birkenhead.

In his annual report on school medical inspection in Birkenhead Dr. R. Sydney Marsden, school medical officer, states that the inspections continue to show three main defects—namely, serious defects of vision and of the teeth in a large number of children, and a sad neglect of cleanliness by many of the parents, leading to a continuously verminous condition among their children. The experience gained shows that to obtain real results in a large number of cases a system of "following up" in their homes is required. To undertake this work Dr. Marsden strongly recommends the appointment of a special nurse.

Hospital Saturday Street Collection.

The Hospital Saturday street collection, made on May 11th, realised the sum of £553 8*s.* 5*d.*, an increase of £154 on last year's "ladies' collection."

May 28th.

NEWCASTLE-ON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

The Royal Infirmary and the Treatment of School Children.

AT a meeting of the Newcastle-on-Tyne Education Committee held on May 8th, under the chairmanship of Councillor George Lunn, a discussion took place with regard to the treatment of school children found on examination to be suffering from various physical defects. It seems that the question arose as the result of a letter from the house governor of the infirmary drawing the attention of the committee to the large number of children treated at the institution as a direct consequence of the medical inspection in the schools. Two years ago a deputation from the Royal Victoria Infirmary waited upon the Education Committee and raised the same question, pointing out the burden thrown upon the institution in having to deal with these cases; and the deputation urged that the committee should exercise the powers it possessed under the Education Act of 1907 to make provision for the medical treatment of defective children. The Education Committee did not then hold out any hope of taking steps in the manner suggested, although statistics were put forward to show that a large number of school children were treated at the infirmary

to the detriment of other cases for which the hospital was really intended. The chairman said that the matter was a difficult one, and there appeared to be two solutions possible. The first was that the committee should set up clinics for the treatment of these children, as had been done in other parts of the country, for instance, in Bradford, with regard to which the British Medical Association had expressed itself satisfied. In Brighton, however, the Association had boycotted the school clinics, and had requested the practitioners to have nothing to do with them. He feared that if such clinics were established in Newcastle the Education Committee would bring upon itself the hostility of the local medical profession and be accused of municipalising the medical treatment of children to the detriment of the practitioner. The second solution, suggested by the deputation from the infirmary, was to pay the institutions for the work done by their medical officers. If additional work of a heavy character was put upon the institutions it might be necessary to remunerate the staffs, and then these would cease to be voluntary officers. He thought that the subsidising of institutions would immediately cause the stopping of the private subscriptions to the charities. He instanced the parallel of the feeding of necessitous children, and pointed out that when this was undertaken at the public expense the possibility of obtaining voluntary support in this direction came to an end. He thought, and the meeting agreed, that the infirmary should be written to asking for statistics as to the numbers of children treated as the result of school inspection, and then the schools subcommittee would go into the matter. He said, further, that an important point in this connexion was that the Government would shortly distribute £60,000 for the purpose of medical inspection. The apportionment of this grant would largely depend upon the steps the various education authorities took to provide for the treatment of the children.

Durham County Council and the Prevention of Consumption.

At a meeting of the Durham County Council held on May 2nd, the Health Committee reported that it had considered the question of the prevention of pulmonary consumption, and after consultation with the county medical officer had decided to recommend in its report that a scheme should be established in the county administration area for providing sanatoriums for both sexes in which early cases could be treated, and also making local provision for the treatment of advanced cases. It was stated that £30,000 would be available for the scheme under the Finance Act, and £18,000 a year would be at the disposal of the Durham Committee under the Insurance Act. The report was adopted.

May 27th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

General Infirmary: Changes on the Staff.

ON May 13th Dr. A. G. Barrs, having completed 20 years service as physician, retired from the active staff, and in accordance with the rules of the infirmary became a member of the honorary consulting staff. It may be remembered that in Leeds the members of the consulting staff, both on the medical and on the surgical side, have the privilege of using six beds, so that their retirement is not a complete one, unless, indeed, they wish it to be of this nature. Dr. Barrs also holds the position of professor of clinical medicine at the University, and it is a satisfaction to his colleagues that it is not his intention to retire from this position in the meantime. Although happily one has to note a change of work rather than a retirement, it seems appropriate to make some reference to Dr. Barrs's long and valuable connexion with the School of Medicine of Leeds. After acting as house physician at the General Infirmary for some three years Dr. Barrs began practice as a physician in Leeds in 1882. He was from the first connected with the School of Medicine and for some time acted as demonstrator of physiology. In 1884 he was elected assistant physician to the infirmary. In 1892 he was promoted to the full staff on the resignation of Dr. J. E. Eddison. At the medical school and University Dr. Barrs passed from the position of demonstrator of physiology to that of professor of materia medica, which he gave up for the more congenial one of professor of medicine. When about two years ago the decision was come to by the University to divide the chair of medicine, or, rather, to create a chair of clinical medicine, Dr. Barrs decided to take up the work of the latter. The chair of medicine was given to Dr. T. W. Griffiths, who had acted as professor of anatomy since 1887. No one who is acquainted with the work of the Leeds School of Medicine can fail to recognise that the work Dr. Barrs has done on its behalf has been of incalculable value. He has been assiduous in his teaching, which has always been characterised by originality as well as by thoroughness. As chairman of the faculty of the infirmary, a position in which he is succeeded by Mr. H. Littlewood, he has filled an important position with conspicuous success. At a recent meeting of the special election committee for the selection of the members of the honorary staff Dr. W. H. Maxwell Telling, senior assistant physician, was promoted to the vacancy created by the resignation of Dr. Barrs. The vacancy on the assistant staff will be filled in due course.

The University.

A new lectureship on diseases of the ear, throat, and nose has been instituted at the University, and to this position the council has appointed Mr. G. Constable Hayes. This new departure follows on a rearrangement of the clinical work at the infirmary. Until recently the eye and ear department of the infirmary has been under the direction of the same members of the honorary staff. Now there are two departments, one for diseases of the eye, which will be under the care of Mr. H. Secker Walker and Dr. A. L. Whitehead, and one dealing with diseases of the ear, nose, and throat, which will be supervised by Mr. G. C. Hayes and Mr. E. Bain, who has recently been added to the staff.—Dr. J. le Fleming Burrow has been appointed medical tutor and medical registrar. In his capacity of tutor he is an official of the University, though all his work is done at the infirmary.—The University has marked its sense of the valuable help given to the students by Dr. Matthew J. Stewart, who holds the position of curator of the clinical laboratory at the infirmary, by conferring upon him the title of honorary demonstrator of clinical pathology.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Memorial of the late Professor D. J. Cunningham.

ON May 22nd a memorial of the late Professor Cunningham, of Edinburgh University, was unveiled in the anatomical rooms of the University. The memorial is in the form of a medallion in bronze. It presents a profile view of the professor and is the work of Mr. Sheppard, of Dublin. Many university professors and other prominent medical men were present at the ceremony. Emeritus Professor A. Crum Brown, as convener of the Memorial Fund Committee, performed the unveiling ceremony, and delivered an appropriate eulogy on the memory of Professor Cunningham. Principal Sir William Turner accepted the medallion in the name of the University, and in feeling terms referred to his associations with his old pupil.

The National Insurance Commissioners for Scotland.

The medical profession in Scotland was somewhat surprised to find in the morning newspapers last week an advertisement from the Scottish Commissioners for the services of two whole-time medical men to act as inspector and sub-inspector under the Act. The duties included "organisation, investigation, inspection, reporting, and any other work which may be required of them relating to medical, sanatorium, maternity, sickness, and disablement benefits under the Act." So far as can be ascertained this action has been taken without any meeting of the Advisory Committee, and at a time when it is supposed that negotiations are pending between the profession and the Commission. On the following morning an advertisement appeared from the Scottish Medical Insurance Council over the name of the chairman reminding the members of the medical profession in Scotland "that no one who seeks to be loyal to his brethren can take any paid post under the National Insurance Act until the demands of the profession, as represented by this Council, have been conceded by the Commissioners." The profession in Scotland is

steadily realising that the time for talk is already almost ended and organisation is apparently being pushed forward on that presumption.

Cancer Statistics of Scotland.

Sir George T. Beatson, surgeon to the Cancer Hospital, Glasgow, last week read an extremely interesting paper before the Royal Society of Edinburgh on the "Cancer Statistics of Scotland for the Years 1861–1900, and their Indications as to the Prevalence, Age Incidence, and Distribution of the Disease in Scotland." He said that one of the reasons for inquiring into the statistics of cancer was that it was not on the wane but the very reverse, and it was important to know to what extent it was increasing, and whether Scotland was sharing in the greater prevalence of the malady. The statistics on which his paper was based had been drawn from the reports of the Registrar-General for Scotland. In all cases both sexes were considered and the inquiry covered the four decades from 1861 to 1900. The one point that stood out pre-eminent was that of late years there had been an increase of deaths from cancer in Scotland, and that that increase had affected males more than females. Assuming that a relatively larger number of persons in Scotland were attacked now by cancer, the natural question was what was the cause of the greater prevalence. Some thought that the increase synchronised with the changes in the social life of the people. Thus a certain class held that the disease had become more prevalent along with compulsory vaccination; others that the consumption of beer and tobacco was responsible; others, again, that the greater amount of meat eaten, and the consequent larger amount of salt consumed, might be reasons explaining the increase. Perhaps they were on safer ground if they said that the wider diffusion of luxury and the accompanying artificiality and strain of daily life had some share in the matter, because surroundings, although they might not be the actual cause of the disease, might produce it in those predisposed to it. When dealing with the age incidence some very interesting facts became apparent. It was clear that under 25 years of age cancer was not a very common ailment, the deaths being few in number. For 1891 to 1900 they only amounted to 475, of which 221 were females and 254 males. As sarcoma was included in the Registrar-General's term "cancer" for 1891–1900, it was very likely that the greater part of these 475 deaths were from sarcoma and not from cancer, and the fact of sarcoma being more common in males might explain the excess of "cancer" (including sarcoma) in males over females. Again, the statistics showed that the most marked onset of cancer occurred in females between the ages of 35 and 45, and in males between 45 and 55. After 55 the disease undoubtedly seemed more prevalent in males, although previous to that age it attacked a greater number of females. From the age of 65 onwards the number of deaths from cancer decreased, especially in females, and after 75 the male mortality became greater than that of the female. One other point that the statistics brought out was that cancer was not affecting young people more frequently than it did formerly. The fact was that cancer made its appearance as a disease not in the decline of life but on the cessation of reproductive life. As to the distribution of cancer in Scotland, it was very difficult to explain the marked difference in the cancer death-rate in counties which topographically resembled one another, and which might be expected to show a similar prevalence of the disease. As regarded prevention, seeing that the cause was unknown, such a task was rendered very difficult, but notification might be a help, as it would give more reliable information as to the districts in which the disease arose. Sir George Beatson also urged the need of research work, and suggested that such work should include: (1) the starting and equipment of special laboratories, to be devoted entirely to research work on cancer; (2) the development of cancer research work in the hospitals and institutions where clinical material is available; and (3) the provision of means for a systematic investigation generally into the causes, prevention, and treatment of the disease. Glasgow had taken a wise step in establishing a research department in connexion with the Cancer Hospital, and it was a course that might well be followed in Edinburgh, where the statistics showed the disease to be specially prevalent.

May 28th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Women's National Health Association and the National Insurance Act.

LAST week a conference of the Women's National Health Association was held in Dublin to discuss the best methods of applying the provisions of the National Insurance Act dealing with tuberculosis. Various local authorities had been invited to send delegates. The main business of the conference seems to have been to obtain approval for a scheme put forward by the Women's National Health Association for which the sanction of the Treasury and the National Insurance Commissioners had already been granted. The association offers to take over for a year the entire management of the "sanatorium benefit," and the administration of whatever funds the Treasury may put at the disposal of local authorities, by the extension of the Allan A. Ryan Home Hospital for advanced cases; the construction, equipment, and distribution of moveable shelters, and the hiring of houses with land for administrative purposes around which the shelters could be grouped; the training of special tuberculosis nurses at Charles-street Dispensary and the Allan Ryan Hospital; the provision of sanatoriums and "preventoriums" for children; arranging in various districts for lodgings for tuberculosis patients and convalescents; the completion and equipment of Clifden Health Home for incipient cases; arranging for home treatment, by the loan of shelters and the provision of nurses; and the provision of farms for recuperating convalescents and training them in domestic and agricultural work. But however excellent this programme may be, it is a serious thing to hand over to a voluntary and irresponsible body of philanthropists the entire direction of a public health campaign. It will be difficult to depart afterward from the lines on which the movement against tuberculosis is started, and the entire capital sum coming from the Treasury will doubtless be used up in the first year. Nevertheless, there are indications that the local authorities may accept the offer of the association. The county councils in Ireland have no experience of public health work, and are quite likely to give up willingly the responsibility of dealing with tuberculosis. It is possible, however, that while willing to be rid of their responsibility, they may not be willing to part with their patronage.

The Midwives Question and the Insurance Act.

The National Insurance Act is urgently bringing the midwives question to the front in Ireland. At the first meeting of the Irish Advisory Committee held in Dublin on May 24th (noted elsewhere in these columns) the Insurance Commissioners voted for the appointment of a subcommittee, to consist of the doctors and the lady members of the committee, to prescribe qualifications for a midwife in accordance with Section 81 (20), which orders that "for references to a duly certified midwife there shall be substituted references to a midwife having such qualifications as may be prescribed." On the same day at a meeting in Dublin of delegates called to a Central Health Conference (Her Excellency Lady Aberdeen in the chair) the matter came up for discussion, and it was decided to recommend a scheme outlined by the Women's National Health Association to the careful consideration of the boards of guardians in Ireland. This scheme proposes to provide extra salary for midwives having the qualifications to be provided by the Insurance Commissioners and appointed by the boards of guardians to dispensary districts, so as to bring their total salary up to £1 a week on condition that they undertake no private practice outside of insured women or the wives of insured men; that while not occupied in midwives' duties they shall carry out work on behalf of mothers and children as prescribed by the association; that they shall keep each patient under supervision for a month after confinement and give special attention to the care and management of babies, in which they are to be given opportunities for training; that any fees paid by patients who may be able shall go to the association to lessen its pecuniary responsibility; and that some plan for the inspection of midwives should be devised, failing a Midwives Registration Act for Ireland. The scheme is to apply at present

to districts where qualified midwives are already employed. But, as the Registrar-General for Ireland pointed out, of the 859 dispensary districts in Ireland in only 142 are there qualified nurses. Many have only unqualified nurses, and in many there is no nurse at all. Sir John Byers said that in the Queen's University of Belfast they had adopted all the suggestions of the General Medical Council, passed in 1907, to improve the students' practical knowledge of midwifery, and they had a clinical examination therein at the final M.B. examinations. In the Belfast maternities they trained both midwives and students, but—like the Rotunda in Dublin and the other maternities in Ireland—they could not continue to do so unless the clauses of the Act depriving of maternity benefit a woman attended at her confinement in the wards or in the extern department of a maternity were altered. Mr. A. J. Horne, a former assistant Master of the Rotunda and present Master of the National Lying-in Hospital, Dublin, said that of 11,000 poor women confined in the Dublin area about 8000 were attended in the practice of the lying-in hospitals. He feared that unless the part of the Act referring to maternities was altered the maternities would be closed, and these great training schools for nurses and doctors would be lost. He suggested that either a Midwives Act should be introduced for Ireland, or centres for the examination of midwives should be established in Dublin, Belfast, and Cork. It was incumbent on the General Medical Council—which was responsible for the medical education of students—and on the Central Midwives Board to take the matter up.

The Belfast Insurance Committee.

At a meeting of the medical profession in Belfast on May 23rd the following four names were chosen, from which the Irish Insurance Commissioners will select two to represent the profession on the Belfast Local Insurance Committee: Dr. R. J. Johnstone, Dr. J. R. Davison, Mr. T. C. Cathcart, and Dr. A. P. B. Moore.

The Ulster Hospital for Women and Children.

A three-day fête in aid of the Ulster Hospital for Women and Children was opened on May 23rd in the new building erected on the site of the old institution in Templemore-avenue by the Countess of Shaftesbury, the Marquis of Londonderry presiding. The chief object of this bazaar was to provide a sufficient reserve fund, so that the larger expenses entailed by the increased work of the new hospital might be provided for until the ordinary income had grown sufficient to meet the greater expenditure. The fête was most successful and a large sum of money was raised.

Death of Mr. Robert Cooper Parke, F.R.C.P. Edin., L.R.C.S. Edin.

The death occurred on May 26th, after a long and painful illness, of Mr. Robert Parke, of Newtownards, County Down. Mr. Parke, who was the son of a Presbyterian clergyman, studied at Queen's College, Belfast, and in 1868 became a Licentiate of the Royal College of Surgeons of Edinburgh, and in 1883 a Fellow of the Royal College of Physicians of Edinburgh. In 1869 he began practice in Newtownards, where he was medical officer of the workhouse, consulting medical officer of the Newtownards union, and coroner for the northern division of County Down. Mr. Parke was a magistrate for County Down, a leading member of the Masonic Order, and a great sportsman, and was for a long time the leading medical practitioner in his district. He was unmarried.

May 28th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Regulations as to the Return of Children to School after Infectious Illnesses.

THE Ministry of Public Instruction, in conjunction with the Ministry of Public Health, has issued a new order relative to the return of children to school after infectious illnesses. The paragraphs of this order are copied from those of the corresponding French order, which came into force several weeks ago, and was outlined by the Paris Correspondent of THE LANCET on Feb. 24th, 1912 (p. 540).

The Limitation of Venereal Diseases.

On the initiative of Professor Julius Donath a national league for the limitation of venereal diseases has been established, and the inaugural meeting was held on April 22nd before an audience consisting of medical practitioners and schoolmasters. The opening address was delivered by Professor Donath, who pointed out that up to the present time very little real progress had been made in preventing the spread of venereal diseases, although the ravages of syphilis were more disastrous than those of either alcoholism or tuberculosis. Statistical returns showed that from 15 to 20 per cent. of the human race suffered from syphilitic infection in some form. He proposed that dispensaries for the treatment of syphilis should be established and that prostitution should be regulated with the view of putting prophylaxis on a more reliable basis. Professor Donath's proposal was unanimously accepted, and arrangements were made for the formation of branch societies in the country.

The Wreck of the "Titanic."

The Cunard steamships starting from Fiume are required to carry a Hungarian medical officer on every voyage, and on board the *Carpathia* this position was filled by Dr. Arpad Lengyel, to whom the principal officials of the Budapest Medical Casino sent a congratulatory telegram. They at the same time asked him to read at one of their meetings a paper on the memorable events associated with the recent voyage of the *Carpathia* and to give them some account of the circumstances in which that vessel rescued the survivors from the wreck of the *Titanic*.

May 23rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Personnel of the Faculties of Medicine and Pharmacy.

THE *Journal Officiel* publishes the regulations for the appointment, promotion, and discipline of the auxiliary *personnel* of the Faculties of Medicine and Pharmacy, which comprises the directors of practical studies and of the research and the clinical laboratories, the demonstrators, the chiefs of clinic, the prosectors, and the assistants in anatomy. No one may be appointed as director of practical studies or of a research laboratory in a faculty of medicine or in a mixed faculty of medicine and pharmacy unless he possesses either the degree of doctor of medicine or of sciences, or the diploma of pharmacist of the first class, and unless his name appears on the list of candidates qualified for the post by the Commission on Medicine and Pharmacy of the Consultative Committee of Public Instruction. For the purpose of establishing this list the Commission examines yearly those candidates who present themselves provided with a report from the *doyens* and with testimonials from the rectors. The *professeurs agrégés* of the faculties of medicine and of the mixed faculties of medicine and pharmacy who may so request will also be officially entered on this list. The directors of practical studies are to be appointed by the Minister, on the nomination of the *doyen* and with the recommendation of the rector. The directors of research laboratories are to be appointed for six years by the Minister, on the nomination of the professor concerned, with the recommendation of the *doyen* and the rector. Their term of office may be prolonged under the same conditions and for a like period. No one may be appointed as director of a clinical laboratory unless he possesses the degree of doctor of medicine or of sciences, or the diploma of pharmacist of the first class. The directors of clinical laboratories are to be appointed for one year by the Minister on the nomination of the professor concerned and with the recommendation of the *doyen* and the rector. Their appointments may be renewed year by year under the same conditions. No one is to be appointed to the office of demonstrator (*préparateur titulaire*) who is not either a doctor of medicine or a licentiate in science, a pharmacist of the first class, or who has not completed 16 terms, as well as holding the post of medical intern of an approved hospital.

The Treatment of Typhoid Fever.

On May 17th, at the Société Médicale des Hôpitaux, M. Courmont, of Lyons, in conjunction with M. Rochaix, reported that he had treated typhoid cases by introducing

into the large intestine cultures of Eberth's bacillus, killed by a temperature exceeding 53° C. The results obtained were worthy of notice and of further investigation. Briefly, out of 171 patients not treated on this plan there had been 20 deaths, or 11·6 per cent., while out of 39 patients who received daily two injections of the culture until the subsidence of the fever, only two deaths occurred, a mortality of only 5 per cent.

The Société de Médecine de Paris.

The Société de Médecine de Paris has formally opened its new library. Occasion was taken to fête two of its members—M. Lucas-Championnière, on his recent admission to the Institute, and M. Letulle, who has been recently appointed professor in the Faculty of Medicine. The ceremony was largely attended and was very harmonious. The president of the society having first congratulated M. Lucas-Championnière and M. Letulle, enlarged on the usefulness of the library. M. Debrigode, the historian of the society, upon whom devolved its material organisation, spoke of the history of the documents and works of which it was composed, and in particular of the numerous volumes constituting the complete collection of more than a century of the society's Bulletin. The secretary-general, M. Paul Guillon, recalled the fact that the society, which is one year younger than the Institute, is an older foundation than the Academy of Medicine. M. Letulle, professor of the history of medicine, in an interesting address, expressed his wish to search the archives of the society to trace the scientific rôle that had had been played by it. M. Lucas-Championnière, after thanking his colleagues and friends, pointed out how necessary it was that a society such as the Société de Médecine de Paris should have a library to-day, now that more than ever before the communications dealt with facts and precise observations, rather than academic and theoretical discussions. A presentation of colour pictures by M. Personnaz terminated the proceedings.

The Pathology of our Predecessors.

At the meeting of the Academy of Medicine on May 20th M. Lucas-Championnière communicated an interesting study on the pathology of our forefathers in the Neolithic age. He said that Dr. Marcel Baudouin, formerly secretary-general of the Société Préhistorique de France, had discovered in the Neolithic burying-ground of Vendrest (Seine et Marne) a number of adult human bones presenting lesions characteristic of the disease now known as osteitis deformans. Among the bones manifestly affected, without counting débris not yet studied, were 29 vertebræ in good preservation, a patella, two ribs, a fibula, a third right metatarsal, and five phalanges. As the vertebral column furnished the greatest number of diseased bones, M. Baudouin had been able to study systematically the localisation of the disease in this part of the body. He examined all the specimens, and determined that the lesion in women is manifestly localised in the middle of the cervical spine, and is situated more often on the left than on the right side, a fact hitherto entirely unknown. In men the disease is seldom found, on the other hand, except at the bottom of the dorsal part, and in the middle of the lumbar part, and its seat is nearly always on the right side.

May 27th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Cholera.

FROM several parts of Turkey, such as Adana, Konia, and Epirus, comes news of an outbreak of cholera. In the first-named place the epidemic is acquiring alarming proportions. It is feared that with the advent of warm summer weather the ravages will steadily increase. During the coming months it is expected that about 20,000 workmen will flock to Adana. If no vigorous preventive measures are taken now it is quite likely that this great influx of people, living as they do under very unsatisfactory sanitary conditions, will be seriously affected by the epidemic, and then its spread throughout the whole of Anatolia will inevitably follow. The workmen flock to Adana from many provinces, such as Erzerum, Haleb, Wan, Bitlis, and Angora. When their engagement is at an end they return carrying with them the germs of infection. Lack of energy on the part of the Ottoman sanitary authorities would therefore be followed by disastrous consequences. I hear, however, that some steps are being taken and that a certain degree of vigilance is being kept to prevent cholera spreading to Constantinople itself. These measures do not seem to me to be satisfactory at all. Authorities here talk so much about the embellishment of the metropolis, while they frequently forget that thorough sanitation is of paramount importance. They enlarge the streets and plant trees instead of creating first and foremost proper drainage and a good water-supply.

Malaria and Syphilis in Anatolia.

The following distressing accounts are taken from Turkish local newspapers. Of all the diseases prevailing in many parts of Anatolia the most terrible are syphilis and malaria. In one district with a population of 5000 people about 3000 were laid up with malaria. In another district almost the whole of the population was stricken with syphilis. Those who escaped the contagion were pointed to by the rest as something anomalous. Children of tender age are frequently sent by their parents to solitary places in order to be cured by superstitious procedures. An eye-witness describes the condition of these children as being in the highest degree piteous. No rational measures are taken and the customary lack of medical men is felt at every turn. The Turkish papers draw the serious attention of the Government to this deplorable state of affairs. The Government, however, is at present so engrossed by the conflict with Italy and by various other political matters that it seems to have no time whatever for needs of a more domestic kind.

Small-pox.

As small-pox is spreading in Constantinople the municipality has appointed a number of public vaccinators and distributed them throughout the various quarters. Vaccination is to be gratuitous. There exists a law that children should be vaccinated six months after birth, and that revaccination should take place every five years. Those who possess no certificate that their children have been vaccinated have to pay a fine of about 7*s.* (2 medjidiehs). In spite of all this, however, many parents refuse to let their children be vaccinated. Frequent quarrels and affrays ensue. The police authorities have to interfere, and small-pox still continues. I must, however, confess that I do not altogether blame the parents for their unwillingness to submit to the public vaccinators, as some of these do their work hastily and clumsily and not seldom with disastrous consequences to the children. Time and again vaccinated children are brought to me with terribly disfigured arms, the mark of vaccination being converted into a large foul-smelling wound. Thorough disinfection is little practised, if at all, in some quarters.

The Medical School at Beirut.

This useful French institution was founded in 1883 for 60 students; now it has over 250. This latter number would be increased considerably if the school possessed all the necessary equipment. There is a great lack of surgical instruments, of hospital accommodation and of laboratories. The French Chamber of Deputies has now granted a subsidy of 30,000 francs in order to make good the deficiencies.

The Hygienic State of Mecca.

Dr. Ibrahim el Shorbaghi has submitted a report on this subject. The following are the most interesting items. The present number of inhabitants is 90,000. The sanitary and hygienic conditions of this sacred city of Islam are far from satisfactory. The water-supplies are always found contaminated, and very frequently the water is said to be undrinkable. The wells communicating with the aqueduct of Ain-Zobeida are muddy, and the buckets used for drawing the water are anything but clean. A plan has been submitted for the installation of a system of water-supply similar to the one existing at Alexandria. The cost was estimated, it is said, at £45,000. But it seems that the scheme has fallen through. In some quarters the pilgrims wash their feet and their clothes in basins communicating with the aqueduct and wells. The Sherif of Mecca quite realises the urgent necessity for improving matters, but meets with obstinate resistance from the Bedouins.

May 14th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

A Hookworm Zone Exhibition.

A Hookworm Exhibition is to be held at the International Congress on Hygiene in Washington, next September, under the supervision of Dr. Charles W. Stiles, the well-known authority on hookworm disease. The statistics gathered by the Rockefeller Sanitary Commission will be shown by charts indicating the presence of hookworm infection between parallels 36 north and 30 south, and that practically all countries between these parallels are infected. The Rockefeller Commission has received reports from 54 infected countries. Of these countries, in Wales, Germany, the Netherlands, Belgium, France, and Spain, the infection is wholly, or chiefly, confined to miners. In 46 countries at least it is general and widespread. The report also shows that 11 States of this country, with a population of 20,000,000, lie in the infected zone, and that of the total population of the world an exceedingly large proportion live in countries in which hookworm disease is prevalent. The conditions in the countries in which the disease is most rife and widespread will be shown. The economic effects of the disease will also be demonstrated by charts. In many localities 50 per cent. of the efficiency of labour is lost in consequence of hookworm anæmia.

A Federal Bureau of Public Health.

What is known as the "Owen Bill" was drawn up with a view of creating a Bureau of Public Health to control the various Federal, State, and municipal sanitary agencies in the United States. But the opposition aroused among patent medicine manufacturers and others whose interests it endangers has caused it to be so altered and emasculated that its original idea can now be scarcely perceived.

Meat Inspection in the United States.

The Sanitary Commissioner of THE LANCET some few years ago was the first to call public attention to the bad condition of the abattoir and meat-packing plants in Chicago. In consequence of these and other revelations, the system of Government meat inspection was reformed, but charges have been made recently that such inspection is not properly carried out, and the Department of Agriculture, which is responsible for the enforcement of meat inspection, is being severely arraigned. A resolution, introduced by Mr. Nelson, is now before the House of Representatives to investigate the meat-inspection service.

Public and Private Charities of New York State.

According to the New York State Board of Charities the aggregate expenditure of the public and private charities of New York State is now $24,000,000 a year and is increasing at the rate of $1,000,000 annually. Further, some 2 per cent. of the population of New York State receives institutional support, and another 2 per cent. outdoor relief. Much of the money expended on charitable purposes by public and private agencies is required for the maintenance of defectives and hereditary paupers, for it is stated that more than one-third of the dependent class and 25 per cent. of the inmates of reformatory institutions are mentally defective. There are said to be about 30,000 feeble-minded persons in the State of New York, of whom 4000 are intermittently sequestered, while 26,000 are at large to propagate their kind.

The Regeneration of Slums.

An interesting experiment in sociology is about to be undertaken in St. Louis. Ten little girls are to be taken from their squalid homes in the slum districts of the city to a well-appointed home in the best district for one day in each week, and under careful observation are to be encouraged to develop whatever talents they may possess. Their individualities will be studied and each will receive instruction in the pursuit for which she shows the greatest aptitude. Individual teaching is the keynote of this experiment, in contradistinction to the system usually followed, of endeavouring to help this type of girl as a class.

Antivaccination Propaganda in the United States.

The antivaccinationists are especially active at present. In Pennsylvania, at the instance of the Antivaccination League, a State Commission has been appointed to investigate the matter. There seems a tendency on the part of State and school authorities to grant concessions to antivaccinationists, notwithstanding that small-pox is prevalent both in the United States and in Canada.

Death of a Medical Philanthropist.

Dr. Daniel K. Pearson, who died recently in Chicago, has for long been celebrated throughout the United States for his munificence in the cause of education. Born more than 92 years ago in Bradford, Vermont, he graduated in medicine at the Vermont Medical School about 1842. He practised medicine first in Chicago and then in Wisconsin; but his large fortune was made by judicious speculation and investment, and quickly attained to several millions of dollars. At the time of his death Dr. Pearson had given away more than $6,000,000 and had left himself only sufficient on which to live frugally.

May 21st.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Public Health in Lahore.

THE Lahore health officer, in his report, writing regarding the recent epidemic of small-pox, says: "It is true, ignorance of the law is no excuse, yet how can one prosecute such ignorant people who can neither read nor write." But it was through their ignorance or prejudice that the majority of cases of small-pox in December were known only by the notification of the death, that the majority of the subsequent 446 cases occurred, and that 188 lives were lost. It is difficult to believe that a few judicious prosecutions would not have disseminated, better than any number of advertisements and leaflets, the information that cases of small-pox must be notified. The vital statistics of the Lahore municipality show a population of 208,126 souls. The total number of deaths from all causes during 1911 was 6681, which gives an annual death-rate of 32 per 1000. 1911 was, as in other parts of India, relatively healthy, the death-rate being 3·3 per 1000 better than in 1910. The Civil Station and Anarkali was the most healthy portion of the area, the number of deaths there being 15 per 1000 less than in the city. Fever and malaria accounted for nearly 3000 deaths, phthisis for 577, pneumonia, diarrhœa, dysentery, and small-pox for about 200 each, plague 19, and cholera only 6. Very nearly half the total number of deaths occurred amongst children under 5, and the committee are to be congratulated on the efforts they are making, by supplying native midwives and by recommending the appointment of a lady health visitor under the health officer, to check the heavy mortality at birth. As to the water-supply, the municipality has in 1912 a special opportunity. The grants to this province for sanitary works have been unusually large, and the supply of money for sanitary protective purposes in the possession of the provincial Government is probably greater than for many years. If the municipality would produce, and engage to complete, a really effective water-supply scheme the necessary funds might be obtained, and the provision of a full flow of safe potable water for the whole city might be assured for years to come. The new drainage scheme for the city and civil station of Lahore, now under consideration by the Sanitary Board, contemplates the erection of a large number of collecting stations in different parts of the civil station. Into these stations the cans for the areas commanded by each centre will be brought, and their contents emptied into a drain, which will carry the sewage along a gentle downward gradient to a spot outside the station, where it will be pumped up and treated in septic tanks. The proposed system is in some respects similar to that of Simla, where there are various collecting stations connected with the main drain; but in Simla there is a deep descent from the town to the sewage outlet, and under the action of gravity all the sewage is rapidly carried down to a stream many feet below the town. In Lahore with its level surface this result will have to be obtained by a fairly steep gradient to the distributing sewers, and the difficulty in the first place of maintaining a steady flow, and in the second place of pumping up and disposing of the sewage, must be considerable. The estimated cost of the scheme is £80,000.

Home Hygiene in Bombay.

His Excellency Sir George Clarke presided at the annual meeting of the Bombay Sanitary Association. Dr. J. A. Turner, medical officer of health, in the annual report, gave great credit to Rao Saheb Pai, the assistant honorary secretary, for his efforts in organising lectures, classes, and the exhibition of sanitary appliances. Prizes were distributed to tenants who had kept their houses and rooms in a satisfactory condition. The Governor, after reviewing the good work in general done by the association, said that the excellent suggestion of giving instruction to the caretakers of tenements had been carried into effect. The evolution of a regular profession of caretakers would certainly improve the sanitary condition of the dwellings of the poor. He approved of the purchase of a magic lantern to increase the interest and impressiveness of the lectures, and of utilising the cinematograph in connexion with sanitation instruction. Mrs. Lennon's report of the conditions under which thousands of babies begin their struggle for existence went far, he said, to explain the terribly high infant mortality in Bombay, and showed how intimately public health was connected with the habits of the people. So long as it was customary to exclude light and air and to render the infant's first efforts to breathe as difficult as possible, improved housing could not secure all the benefits to be expected from it. Eastern Bengal and Assam had long been known to be comparatively free from plague, which careful inquiry now proved to be due mainly to the scarcity of rats in the houses. But the scarcity of rats could be plainly traced to the habits of the people, who showed neatness and tidiness, even in their huts of matting. The Bengali took a pride in his home, and even his kutcha houses were so constructed as to give no shelter for rats, while he had acquired the habit of storing his goods and his food in orderly fashion. "The tyranny of custom" was nowhere more rampant than in India, and it was to customs essentially bad but deeply ingrained that insanitary conditions were largely due.

The Drink Evil in India.

At a recent meeting of the Punjab Legislative Council attention was drawn to the rapid rise in the excise revenue in the last few years, which was a matter for serious consideration, whether due to increased prosperity or to good harvests. It showed unmistakeably that drunkenness was on the increase. An Indian member deplored the fact that his own community, the Sikhs, were the greatest sinners in this respect. He suggested religious education being given to the people by all communities as the best remedy for the drink evil.

Indian Army Dentists.

A correspondent of the *Pioneer* attacks the army dentists, saying that "in the conditions of service it was laid down that dentists engaging would be only soldiers' dentists, that they were not being engaged for officers, and that they would not be allowed private practice in any station where there was a dentist." The writer charges them with disregarding the rules laid down at the time of their engagement "by advertising themselves, working for officers and civilians, and supplying soldiers and their wives with dentures." He further asserts that they exact from the soldiers vouchers which are sent to the Paymaster—a violent infraction of regulations. It is a pity that such attacks should be printed in the Indian press, for the nine army dentists now employed in India are doing valuable work in improving the health of the army.

The All India Sanitary Conference.

In the report of this conference no definite recommendations on any of the points under deliberation appear to have been made, though two subjects of special interest to the medical profession, adulteration of food and drugs and town planning, were dealt with. The members of the conference thought that the question of the adulteration of drugs should be investigated. As to the form which legislation, if instituted, should take, Surgeon-General Bannerman considered an All-India Act preferable, provided adequate elasticity was permitted to local governments. In any case standards should be worked out by Government officers and not by local bodies. Dr. Turner, medical officer of health of Bombay, initiated the discussion on town planning. The conference expressed the opinion that no town-planning scheme, properly speaking, had been undertaken in any of the provinces.

Closing of Unused Wells in Madras.

The malaria committee has pronounced the water of unused wells in houses to be deleterious to public health as it offers breeding grounds for anophelines. The health department of the Madras corporation is busying itself in visiting the tenanted houses in the city, where the well water is not utilised for domestic or other purposes, with a view to having the wells finally closed and filled in.

Cholera at Nassik.

Owing to the prevalence of cholera at Nassik it has been found necessary to have medical inspection at railway stations to prevent the importation of the disease into Bombay.

May 4th.

Obituary.

JAMES HILL GIBSON, M.D., M.CH. R.U.I.

ON May 14th the death occurred of Dr. J. H. Gibson at his residence at Parkstone, Dorset. Dr. Gibson was born near Omagh, co. Tyrone, in 1856. He was educated at the Belfast Seminary and Royal Academical Institution, matriculating into the old Queen's University in 1874. He pursued a most successful career at Queen's College, Belfast, gaining prizes each year in almost every subject, becoming senior scholar in medicine and carrying off the Coulter Exhibition in the Royal Hospital. He graduated M.D. in September, 1878, with the highest honours, securing the gold medal, at that time the blue riband of the medical curriculum. Coming to London shortly after he was appointed assistant resident medical officer to the Whitechapel Infirmary and soon afterwards medical officer for the St. John's Wood district of St. Marylebone, a position he held for nearly 20 years, combined with a large practice in Maida Vale. He also acted as assistant surgeon to the Western Ophthalmic Hospital, surgeon to a Volunteer regiment of artillery, and took an active part in the foundation of the Mary Wardell Convalescent Home. Some seven years ago failing health obliged him to retire from active practice, and he settled at Parkstone, Dorset, devoting himself to ophthalmic work, in which he was remarkably successful. Dr. Gibson had much personal charm; he was a man of wide and varied reading and possessed a ready pen. He was buried in the picturesque churchyard of Longfleet, Poole, and several former colleagues journeyed from London to pay the last tribute of respect to a valued *confrère*

PALEMON BEST, M.B. LOND., M.R.C.S. ENG., J.P.

MANY old medical friends of Dr. Palemon Best, some of whom were at University College with him 50 years ago, will hear with regret of his death. His health had been failing for some years; of late attacks of angina pectoris became increasingly frequent; and on May 7th he succumbed suddenly to a severe attack of cardiac dyspnœa.

Palemon Best was born at St. Ives, Cornwall (a district for which he always retained a deep affection), in the year 1839. He received his medical education at University College, London, where he had a brilliant career as a student, and was a favourite pupil of the late Sir William Jenner. He took his M.R.C.S. and L.S.A. in 1861, and gained a gold medal in medicine for his year at University College, London. In 1864 he took his M.B. Lond., being placed first in medicine, thus winning the gold medal and a scholarship of £100. Although advised by Sir William Jenner to remain in London, he decided for family reasons to practise in his native town. On the death of his parents soon afterwards he settled in medical practice at Louth, Lincolnshire, where he remained until within a few years of his death. He soon gained success in general practice, and with characteristic zeal and energy he identified himself with the life of the town. He was once mayor of the borough, a governor of the local King Edward VI. Grammar School, and a justice of the peace. Dr. Best's opinion was highly valued in consultation in the neighbouring district. His mind was of the encyclopædic order and there were few subjects in which he was not interested. His advice was frequently sought on questions of general and medical education, and several men who have attained to high positions in the medical profession owe much to his counsel and

help. He leaves one son, Mr. W. Jenner Best, of Louth, Lincolnshire, also a member of the medical profession, and a daughter, Mrs. F. W. Dyson, married to the Astronomer-Royal of England.

THE NATIONAL INSURANCE ACT.

CITY OF LONDON PROVISIONAL COMMITTEE.

A MEETING of the Provisional Committee for the area of the City Division was held on May 21st, at the Liverpool Street Hotel, London, under the chairmanship of Mr. EVAN JONES. It was largely attended, nearly all the delegates being present.

The HONORARY SECRETARY (Mr. W. F. Roe) said that the result of the canvass had surpassed expectations, and that of the districts Bethnal Green had been the most successful. With one exception every practitioner in that area had signed the British Medical Association's pledge and agreed to send in resignations of all his clubs.

The CHAIRMAN reported that Mr. R. C. Elmslie, who had been selected by the profession to represent the Metropolitan Hospital on their committee, was unable to act, but had ascertained that Mr. P. Maynard Heath (one of his colleagues) was willing to take his place. He proposed to ask the committee to accept this substitution. This was unanimously agreed to. The chairman then said he should call upon the representatives of the various divisions of their area to report as to the success of their canvass. He was happy to say that the total success attained up to the present had been phenomenal, and the guarantee fund already exceeded £700, and would certainly exceed £1000, when the returns for the whole area were in hand.

The subject of the admission of members to Friendly Societies without medical examination came up for consideration, and it was stated that many members were now being received by the societies at the present time without the customary examination. At the suggestion of the CHAIRMAN it was decided to bring this matter before the State Sickness Insurance Committee of the British Medical Association and ask for instructions.

MEETING OF THE IRISH ADVISORY COMMITTEE.

On May 24th the first meeting of the Irish Advisory Committee was held at the offices of the Insurance Commissioners. The committee was addressed by Mr. Joseph A. Glynn, chairman of the Commissioners, who, having discussed the functions of the committee, asked for the appointment of subcommittees to report on certain points of importance. He asked that the lady members and the medical members should draft a set of regulations on the qualifications of midwives, as the Midwives Act did not apply to Ireland. He asked the medical members and the representatives of the Friendly Societies and trades unions to confer on the question of medical certificates and make suggestions which the Commissioners could lay before the approved societies. This was, however, Mr. Glynn pointed out, a matter which lay outside the scope both of the Commissioners and the Advisory Committee. The following medical members were present: Right Hon. Dr. M. F. Cox, Dr. J. S. Darling, Dr. T. Donnelly, Dr. T. B. Costello, Dr. J. Power, and Dr. P. T. O'Sullivan.

THE PROFESSION IN IRELAND AND THE NATIONAL INSURANCE ACT.

The organisation of the profession in regard to the National Insurance Act is proceeding in all parts of the country. In the North Riding of Tipperary all the practitioners have signed an undertaking to accept service under the Insurance Act only on conditions approved by a Local Medical Committee. In Dublin practitioners are being invited to sign a similar undertaking.

LITERARY INTELLIGENCE.—Messrs. Jarrold and Sons announce for publication "Sun Yat Sen and the Awakening of China," by James Cantlie, F.R.C.S., Dean of the College of Medicine of Hong-Kong, 1889–1896, and C. Sheridan Jones. The work includes some hitherto unpublished letters.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Budapest:* Dr. Karl Schaffer has been appointed Extraordinary Professor of the Histology of the Central Nervous System.—*Florence:* Dr. Luca Fioraventi has been recognised as *privat-docent* of External Pathology.—*Guatemala:* Dr. D. Alvarez has been appointed Professor of Ophthalmology and Dr. Robles Professor of Clinical Surgery. Dr. R P. Luna has been appointed to the chair of Internal Pathology in succession to the late Dr. S. Gonzalez.—*Munich:* Dr. R Bestelmeyer has been recognised as *privat-docent* of Surgery.—*Rostock:* Dr. F. Best has been recognised as *privat-docent* of Experimental Pathology.—*Strasburg:* Dr. Hermann J. Pagenstecher has been recognised as *privat-docent* of Ophthalmology.—*Toulouse:* Dr. Rispal, *agrégé*, has been appointed Professor of Bacteriology, the chair having just been established.

AN AMERICAN SURGEON AT GUY'S HOSPITAL.—Guy's Hospital recently received a visit from Dr. W. J. Mayo, the well-known American surgeon, and the elder of the two famous brothers who have made Rochester a place of pilgrimage for surgeons of all nationalities. Some idea of the enormous amount of work carried out by the brothers can be gained by a study of the last annual report of St. Mary's Hospital, Rochester. For example, during the year the report states that over 1000 operations for goitre were performed, 1000 appendicectomies, 500 cholecystostomies, 220 hysterectomies, and 126 operations for intestinal stasis, while the total operations for the year were 8745, over 4000 of these being abdominal. Dr. Mayo is particularly interested in the question of the operative treatment of chronic intestinal stasis, and watched the short-circuiting operations by Mr. Arbuthnot Lane for this condition. The results obtained from this operation in the United States have so far been very satisfactory, and a considerable amount of work is being done on the subject by leading American surgeons.

ROYAL METEOROLOGICAL SOCIETY.—A provincial meeting of this society was held on the invitation of the mayor and corporation at Southport on May 13th. After assembling at the Town-hall in the morning the Fellows were driven to the anemograph station at Marshside, where they saw the pressure-tube anemometers and the anemoscope at work. The exposure of these instruments is very open, as the district is an extensive reclaimed marsh adjoining the beach. On their return to the town-hall the Fellows were entertained at lunch by the mayor. A visit was then paid to the Fernley Observatory in Hesketh Park to see the large collection of self-recording and other instruments which are in use at this unique observatory. At the same time a demonstration was given of the method of filling and sending up a ballon-sonde with meteorograph attached for ascertaining the temperature in the upper atmosphere. Observations of the track of the balloon were made by means of a theodolite. After tea a meeting of the society was held in the Science and Art School, Dr. H. N. Dickson, the President, being in the chair. Mr. W. Marriott read a paper on the Results of Hourly Wind and Rainfall Records at Southport, 1902–1911, and Mr. J. S. Dines read a paper on the South-East Trade Wind at St. Helena.

THE FOURTEENTH INTERNATIONAL CONGRESS OF PREHISTORIC ANTHROPOLOGY AND ARCHÆOLOGY.—This Congress will be held in Geneva during the first week of September under the patronage of the Swiss Federal Council and the Council of State of the Republic and Canton of Geneva. The previous congress was held six years ago, in 1906, at Monaco. The sessions will take place in the hall of the University of Geneva. Communications may be presented in French, or in English, German, or Italian if accompanied with a *résumé* in French. The discussions must take place in French. The subscription is 25 francs, including receipt of the proceedings, or 15 francs without. The questions proposed cover a wide field in regard to prehistoric races and their survivals, their artistic and other products, symbolism, the unification of anthropological measurements and nomenclature, and so forth. There will be excursions and entertainments for those

in attendance, and steps are being taken to secure reduced travelling charges on the railways and special prices at the hotels. The secretary-general is M. Waldemar Deonna, 16, Boulevard des Tranchées, Geneva.

A DEVONSHIRE CENTENARIAN.—Mrs. Sleep, of Barnstaple, died on May 8th. She celebrated her hundredth birthday on March 22nd last.

PRESENTATION TO A MEDICAL PRACTITIONER.—Dr. Peter Macarthur, who recently resigned the post of dispensary medical officer of the Grey Abbey district, County Down, after 38 years' service, was recently entertained to dinner and presented with a cheque for £325, together with an illuminated address.

ISOLATION ACCOMMODATION IN DEVONSHIRE.—At Newton Abbot, on May 16th, a subcommittee of the General Purposes Committee of the Devon County Council held an inquiry into the application of the Newton Abbot joint hospital committee for the extension of the hospital district by including Bickington, Broadhempston, Ideford, Ilsington, Lustleigh, Stokeinteignhead, Trusham, and Woodland. There was considerable opposition to the scheme by the various parishes concerned, although in scarcely any of them is there any means whereby infectious cases can be isolated. In the interests of the adjoining parishes, no less than their own, it is to be hoped that the subcommittee will recommend the inclusion of this area, so that the protection of isolation accommodation may be given it.

CONGRESS OF THE UNIVERSITIES OF THE EMPIRE.—The programme will be as follows: July 2nd, 10 A.M.: Chairman, the Earl of Rosebery and Midlothian, Chancellor of the Universities of London and Glasgow, and Lord Rector of the University of St. Andrews, by whom the Congress will be opened. The question of division of work and specialisation among universities, introduced by Sir Alfred Hopkinson, Vice-Chancellor of the Victoria University of Manchester. Inter-university arrangements for post-graduate and research students, introduced by Principal Peterson, McGill University of Montreal. July 3rd, 10 A.M.: Chairman, Earl Curzon of Kedleston, Chancellor of the University of Oxford. The relation of universities to technical and professional education and to education for the public services, introduced by Professor A. Smithells, University of Leeds, and Mr. Stanley Leathes, C.B., First Civil Service Commissioner. Interchange of university teachers, conditions of interchange, introduced by Dr. J. W. Barrett, University of Melbourne. 3 P.M.: Chairman, the Right Hon. A. J. Balfour, Chancellor of the University of Edinburgh. The problem of universities in the East in regard to their influence on character and moral ideals, introduced by Sir Frederick Lugard, G.C.M.G., late Governor Hong-Kong and Chancellor of the University of Hong-Kong, and Dr. J. C. R. Ewing, Vice-Chancellor of Punjab University. Residential facilities, including colleges and hostels, in connexion with universities, introduced by Mr. E. B. Sargant, member of the Royal Commission on University Education in London. July 4th, 10 A.M.: Chairman: Lord Rayleigh, Chancellor of the University of Cambridge. Conditions of entrance to universities and the possibility of equivalence and mutual recognition of entrance tests to degree courses, introduced by Mr. P. E. Matheson, Oxford secretary of the Oxford and Cambridge Schools Examination Board. Action of universities in relation to the after-careers of their students, introduced by Mr. H. A. Roberts, secretary of the Cambridge Appointments Board, and Miss M. G. Spencer, secretary of the Central Bureau for the Employment of Women. 3 P.M.: Chairman, Viscount Haldane, Chancellor of the University of Bristol. Provision of courses of study and examinations for other than degree students, including university extension and tutorial class work and specialised courses for students engaged in professional, commercial, and industrial pursuits, introduced by Mr. J. A. R. Marriott, secretary of the Oxford University Extension Delegacy, and Rev. D. H. S. Cranage, secretary of the Cambridge University Extension Syndicate. July 5th: Chairman, Lord Strathcona and Mount Royal, Chancellor of the Universities of Aberdeen and McGill. The establishment of a central bureau, its constitution and functions, introduced by Dr. G. R. Parkin, C.M.G., organising secretary of the Rhodes Scholarship Trust. The position of women in universities, introduced by Miss H. M. White, Principal of Alexandra College, Dublin. Representation of teachers and graduates on the governing body of a university, introduced by Sir James Donaldson, Vice-Chancellor and Principal of the University of St. Andrews. Among the entertainments offered to members of the Congress the following have been announced:—July 1st (evening): British Academy: "The Shakespeare Lecture," by Dr. A. C. Bradley, LL.D. July 2nd: Luncheon to delegates by invitation of His Majesty's Government at the Hotel Cecil. 4.30–6: The committee of the London School of Medicine for Women "At Home" at 8, Hunter-street, W.C. In the evening there will be a reception of delegates by H.R.H. Prince Arthur of Connaught, K.G., President of the General London Committee, at the University of London, and a conversazione. July 3rd: The Worshipful Company of Fishmongers, The Worshipful Company of Merchant Taylors, and The Worshipful Company of Clothworkers invite to dinner at their several halls delegates from overseas and the ladies by whom they are accompanied. Mrs. Sargant "At Home" at Claridge's Hotel. July 4th (9–11.30 P.M.): The Lord Mayor "At Home" at the Mansion House. July 5th (evening): Earl Beauchamp, H.M. First Commissioner of Works, "At Home" at 13, Belgrave-square. The Royal Colonial Institute offers honorary membership to all members of the Congress during Congress week and to all delegates from overseas for so long as they may remain in the United Kingdom. Application should be made to the secretary of the Royal Colonial Institute, Northumberland-avenue, W.C. The Royal Societies Club offers honorary membership for one month to all delegates from overseas. Applications should be made to the secretary of the Royal Societies Club, St. James's-street, S.W.

MISSION TO LEPERS IN INDIA AND THE EAST.—The mission to lepers in India and the East has recently issued its thirty-seventh annual report, which shows that during the year 1911 the mission was not only able to maintain all its existing work, but also to provide increased accommodation for lepers. In its own 50 asylums and its various children's homes the mission is responsible for the support of about 4000 lepers and upwards of 550 untainted children, no less than 3500 of these lepers and 450 of these children being at its Indian stations. It is hoped during the present year that at least two new asylums will be erected in India, both of which are much needed. Building operations have already been commenced for a second asylum in Korea, and negotiations are also proceeding with regard to commencing work in Arabia and Persia, where nothing of the kind has as yet been attempted. An earnest appeal is made for increased funds. The London office of the society is 33, Henrietta-street, Strand, W.C.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Mental Defect Bill.

THE text of the Mental Defect Bill which was introduced in the House of Commons by Mr. HILLS on April 15th has been printed. Its object is "to amend the law relating to mentally defective and epileptic persons." This is the third measure dealing with the control of the feeble-minded now before Parliament, the other two being the Home Secretary's Mental Deficiency Bill and Mr. STEWART'S Feeble-minded Persons (Control) Bill.

A memorandum attached to the Mental Defect Bill explains its scope and machinery. In it it is stated that the measure is drafted in accordance with the recommendations of the Royal Commission on the Care and Control of the Feeble-minded, and extends to all grades of the mentally defective the same measures of care and protection now given to lunatics, idiots, and imbeciles under the Lunacy and Idiots Acts. The definition of "feeble-minded" adopted by the Bill is the one suggested by the Royal College of Physicians. In contradistinction to the Home Secretary's proposals, the Bill sets up no new central authority. The Lunacy Commission, enlarged, modified, strengthened, and renamed "the Board of Control," is made responsible for the supervision of all the mentally defective. It is proposed that the existing statutory asylums committees of the county and county borough councils shall be responsible for the care, training, protection, and control of all the mentally defective in their district. Mentally defective persons are not to be dealt with on the ground of pauperism but on the ground of mental incapacity. A system of record and limited notification is suggested with a view to ascertaining who are the mentally defective

and where they are. Further, the supervision of these persons is provided for. The Bill contains special provisions for the education and control of feeble-minded children, for the treatment of feeble-minded juvenile offenders, feeble-minded prisoners, and mentally defective habitual inebriates.

The Bill thus aims at providing a very elaborate code of law for the care of the mentally defective. It consists of 252 clauses and six schedules, but its length is due to the fact that in addition to giving effect to the recommendations of the Royal Commission on the Care and Control of the Feeble-minded, it reproduces, *mutatis mutandis*, those provisions of the Lunacy and Idiots Acts which are unaffected by the recommendations of the Commission. The declared intention of the Government to proceed with its Mental Deficiency Bill this session throws into the background the two private Members' Bills on the same subject, but they have been useful in showing the trend of opinion in different quarters.

HOUSE OF COMMONS.

WEDNESDAY, MAY 22ND.

Tuberculosis Dispensaries.

Mr. CHARLES BATHURST asked the Secretary to the Treasury whether he realised that the proposed provision of tuberculosis dispensaries in accordance with estimates framed on a population basis would be found impracticable in Wiltshire and other agricultural counties with a comparatively small and scattered population, without an expenditure of at least three times the amount of money provided for this purpose by the National Insurance Act; and whether, in the event of sufficient funds not being available in the hands of the county insurance committees, it would be the duty of the county councils to raise the balance of the required sum by an additional county rate.—Mr. MASTERMAN replied: I presume that the honourable Member refers to the proposals of the Interim Report of the Departmental Committee on Tuberculosis in connexion with the distribution of the sum available under Section 16 of the Finance Act, 1911, and Section 63 of the National Insurance Act for the provision of sanatoriums and other institutions approved by the Local Government Board. The report explicitly recognises the necessity of a greater number of dispensaries in proportion to population in rural districts. With regard to the second part of the question, it is not contemplated that tuberculosis dispensaries should be established for the provision of treatment for insured persons only. They are intended to meet the requirements of the whole population, and in so far as others than insured persons and their dependents are treated, it is obvious that the cost of such treatment must be borne by the authorities or persons who refer them to the dispensary for treatment.

The Administration of the Insurance Act.

On the debate on the motion for the adjournment for the Whitsuntide holidays,

Mr. BOOTH raised certain questions in regard to the relation of the medical profession to the Insurance Act. He said that he wished to warn the medical profession—and he thought that he had some authority—that if they pursued their demands extravagantly and unreasonably, and if they persisted in a campaign of attack upon the old friendly orders for their treatment of medical men and club practice, they would find in the future that all approved societies must, and would, stand together. The new combative spirit of the medical profession, the honourable gentleman went on to say, was almost beyond belief. The medical men had been reticent in regard to their figures. They had not supplied them to Parliament. They had not thought it wise to supply the details with regard to their practice, and they had never made it clear what they wanted. Some asked one price and some another. Some condemned the Act from one standpoint and some from another. The honourable Member proceeded to discuss a case in Devonshire.

The DEPUTY SPEAKER ruled that a purely local case could not be discussed on the present occasion, as it did not come within the purview of any Government Department.

Mr. BOOTH said that he wanted to appeal to the Chancellor of the Exchequer and to the Insurance Commissioners, if they found that the medical men were led by extremists and by unreasonable men who would not fairly look facts in the face, to make it clear to them that they must be prepared for stronger criticism, and even opposition, from the great body of working men throughout the country. His conception of the Bill as it passed through the House of Commons was that it would increase the prestige of the medical profession, add to its income, and put it on a better and sounder financial basis. He thought that the members of the medical profession should understand that the Bill made an effort to strengthen them and to improve their position. It was a chance which they would never again get. If they rejected it and treated it as a hostile movement instead of a friendly help, the medical profession must take the responsibility. The inevitable outcome would be that men like himself who were not Socialists would be driven at once to the conclusion that the only solution was a State or a municipal service.

Dr. CHAPPLE said that the injustice which the medical profession felt was that they were to be asked to treat a man who had 75*s.* a week on the same terms as the man whose wages were 23*s.* At present a doctor took contract practice, say, at 5*s.* per head per year, and if a man had 23*s.* a week he was presumably a working man with a working man's home. That would rule out a large number of serious diseases. For instance, it would rule out typhoid fever. A man living in a working-class home with that wage could not afford to have professional nurses night and day, and would have to go to a special institution. It ruled out also compound fracture of the thigh or of the lower limb, and all the major operations for which he could not stay in his home. The doctor had to estimate all those things in taking contract practice, and with these serious cases ruled out he would simply have to attend indigestion, rheumatism, the lancing of small abscesses, and so on. If a man got larger wages—say £5 a week—he made greater demands on his medical man. If he had typhoid fever, he might say that he would not go to an institution but would be treated at home with professional nurses. If these demands were to be made on the medical profession without giving a higher fee injustice would be done. If a man joined a Friendly Society with a wage of 23*s.* a week and that wage was increased to 79*s.* a week, then he was going to demand services from the doctor which were impliedly ruled out. If greater demands were going to be made on the medical man, was he to be paid more? That was the one crucial difficulty. It was a difficulty which had always existed, and from which medical men for years had tried to emancipate themselves. The State now proposed to stereotype the very thing from which they were endeavouring to emancipate themselves. That was at the basis of the agitation and was the justification for it. What were the remedies? The remedy of the medical profession was an income limit of £2 per week. That was absolutely impossible. It was to the advantage of the Friendly Society and of the Insurance Act that any sense of injustice should be removed from the minds of medical men. It could be got over by saying that if any insured person was in receipt of more than £2 per week the doctor should be entitled—the onus of proof being on him—to have an addition to his fee to be fixed by the Health Committees of the different localities. In the case of over £2 a week there might be a payment of quarter of the fee additional, or in the case of £3 a week half of the fee additional. If that quarter and half did not seem fair, some other proportion might be fixed. He therefore suggested that a medical man should be allowed where a man was receiving beyond a certain income to make an extra charge, the capitation fee being a sort of retaining fee. He thought that that would be a solution of the difficulty.

Mr. MASTERMAN (Secretary to the Treasury), replying to the debate, said that the Insurance Act would come into operation on July 15th. He would not say a word in connexion with the doctors, because most friendly and amicable negotiations were at present proceeding between the representatives of the medical men on the Advisory Committee and the Insurance Commissioners. He would not by suggestion or word which might be misinterpreted do anything which might make those negotiations have a less favourable outcome. By the end of 1913, after the benefits had been in operation for a year, it was calculated by the Government actuaries that 800,000 mothers would have received maternity benefit to the value of 30*s.* by right of their husbands, and another 100,000 mothers by right of themselves being insured; that 2,500,000 persons, men and women, would have received sick pay from the National Insurance scheme; that at least 250,000 persons suffering from tuberculosis would have received one of the many varieties of treatment which had been suggested as suitable to their condition by the Tuberculosis Committee, and he should think that as the result of the Insurance Act a very large number of those persons would have received restoration of life after a sentence of death.

The motion for the adjournment of the House until Tuesday, June 4th, was afterwards agreed to.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND CO., LIMITED, 44 and 45, Rathbone-place, London, W.

Words to Wives on Pregnancy and Parturition. By S. Bingham, M.R.C.S. Eng. Price 3*s.* 6*d.* net.

ANGUS AND ROBERTSON, LIMITED, 89, Castlereagh-street, Sydney. AUSTRALIAN BOOK COMPANY, 21, Warwick-lane, London, E.C.

A Manual of Practical Bio-Chemistry. For the Use of Students doing Introductory Courses. By H. Leighton Kesteven, D.Sc., Lecturer in Physiology and Bio-Chemistry in the Technical College, Sydney. Price 2*s.* 6*d.* net.

ARNOLD, EDWARD, London.

A System of Clinical Medicine, dealing with the Diagnosis, Prognosis, and Treatment of Disease. For Students and Practitioners. By Thomas Dixon Savill, M.D. Lond. Third edition, thoroughly revised. Price 25*s.* net.

BAILLIÈRE, TINDALL, AND COX, London.

Anæsthetics. A Practical Handbook. By J. Blumfeld, M.D. Cantab., Senior Anæsthetist to St. George's Hospital; Lecturer on Anæsthetics to St. Mary's Hospital, &c. Third edition. Price 3*s.* 6*d.* net.

BLACK, ADAM AND CHARLES, London.

The Social Guide. 1912. Edited by Mrs. Hugh Adams and Edith A. Browne. Third year of issue. Price, cloth, 2*s.* 6*d.* net.; full leather, 3*s.* 6*d.* net.

BLAKISTON'S (P.) SON AND CO., 1012, Walnut-street, Philadelphia.

Immunity. Methods of Diagnosis and Therapy and Their Practical Application. By Dr. Julius Citron, Assistant at the University Clinic of Berlin, II. Medical Division. Translated from the German and edited by A. L. Garbat, M.D., Assistant Pathologist, German Hospital, New York. Price $3.00.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.

Clinical Methods. A Guide to the Practical Study of Medicine. By Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital; and Harry Rainy, M.D., F.R.C.P. Ed., F.R.S.E., Assistant Physician to the Royal Infirmary, Edinburgh. Fifth edition, revised throughout. Price 10*s.* 6*d.*

CHEMIST AND DRUGGIST, THE, Offices of, 42, Cannon-street, London, E.C. Branch Offices: Adelaide, Melbourne, and Sydney, Australasia.

The Art of Dispensing. Ninth edition (revised and enlarged). By Peter MacEwan, F.C.S., Pharmaceutical Chemist, Editor of "The Chemist and Druggist." Price 8*s.* net; or by post, 8*s.* 4*d.*

CHURCHILL, J. AND A., London.

The Pollution of Swimming-Baths. By J. Graham Forbes, M.D., M.R.C.P., D.P.H. Issued by the Medical Officers of Schools Association. Price 1*s.* net.

COSSAR, JOHN, "Press" Buildings, 577, Govan-road, Govan.

The National Insurance Act. Criticised and Explained, in Simple Language. By H. E. Jones, Author of "Alcohol"—a Drawing-room Address. Price 6*d.* net.

DEUTICKE, FRANZ, Leipzig und Wien.

Das Subaquale Innenbad. Von Privatdozent Dr. Anton Brosch, K.u. K. Stabsarzt, ordentliches Mitglied des Militärsanitätskomitees, Lehrer an der Militärärztlichen Applikationsschule und Prosektor am Militärleichenhof in Wien. Unter Mitwirkung von Dr. Otto von Aufschnaiter, Chefarzt der städtischen Kuranstalt in Baden bei Wien. Zweite, vermehrte Auflage. Price M.3, or K.3.60.

FISCHER, GUSTAV, Jena.

Handbuch der Gesamten Therapie. In Sieben Bänden. Herausgegeben von Dr. F. Penzoldt und Dr. R. Stintzing. Vierte umgearbeitete Auflage. Dreiundzwanzigste Auflage (Schluss-) Lieferung. Price M.4.50.

Die Gallensteinkrankheit und ihre Behandlung vom Standpunkt des inneren Mediziners und Chirurgen. Von Dr. Karl Grube, Professor in Bonn, Arzt für innere Krankheiten in Bad Neuenahr und Dr. Henry Graff, Professor und Dirigierender Arzt des chirurgischen Abteilung des Marienkrankenhauses auf dem Venusberg in Bonn. Price M.7.

GRIFFITHS, THOMAS, AND CO., 65, Bridge-street, Manchester.

The Doctors and the Insurance Act. A Statement of the Medical Man's Case against the Act. By J. Dyer Bray. Price 3*d*. net.

HARRISON AND SONS, 45, Pall Mall, London, S.W.

An Operating Theatre in Private Practice. By C. Hamilton Whiteford, M.R.C.S., L.R.C.P. Price 3*s*. 6*d*. net.

HIRSCHWALD, AUGUST, Berlin.

Kurzgefasste Anleitung zu den wichtigeren hygienischen Untersuchungen. Von Dr. med. Bernhard Fischer, o.ö. Professor der Hygiene, Direktor des hygienischen Instituts zu Kiel. Zweite umgearbeitete und vervollständigte Auflage. Price M.5.60.

JOUVE ET CIE, 15, Rue Racine, Paris.

Les Pratiques Chirurgicales chez les Arabes. Par le Docteur H. J. Brion. Price not stated.

KLINKHARDT, DR. WERNER, Leipzig.

Handbuch der gesamten medizinischen Anwendungen der Elektrizität, einschliesslich der Röntgenlehre. In drei Bänden bearbeitet von Prof. Dr. A. Alexander, Priv.-Doz. Dr. F. Battelli, Prof. Dr. J. Bergonié, Prof. Dr. H. Boruttau, Prof. Dr. G. Bredig, Prof. Dr G. Bruehl, Priv.-Doz. Dr. H. Fecht, Dr. O. Fehr, Prof. Dr. G. Galli, Dr. R. Hahn, Prof. Dr. P. Krause, Dr. A. Laquerrière, Prof. Dr. M. Levy-Dorn, Prof. Dr. F. Lommel, Prof. Dr. A. v. Luzenberger, Prof. Dr. L. Mann, Dr. P. Meissner, Prof. Dr. M. Mendelssohn, Geh. Reg.-Rat Prof. Dr. W. Nernst, Prof. Dr. H. Starke, Dr. R. Steiner, Prof. Dr. J. K. A. Wertheim-Salomonson, Dr. J. Zanietowski. Herausgegeben von Prof. Dr. med. H. Boruttau, Privatdozent für Physiologie an der Universität Berlin und Prof. Dr. med. L. Mann, Privatdozent für Nervenheilkunde an der Universität Breslau. Mitherausgeber für den Röntgenband: Prof. Dr. med. M. Levy-Dorn, Leitender Arzt am Rudolf-Virchow-Krankenhause in Berlin und Prof. Dr. med. P. Krause, Direktor d. medizinischen Universitätspoliklinik in Bonn. Zweiter Band, zweite Hälfte. Price, paper, M.30; bound, M.32.50.

Leitfäden der Praktischen Medizin. Herausgegeben von Professor Dr. Ph. Bockenheimer, Berlin. Band 6. Tropenkrankheiten und Tropenhygiene. Von Prof. Dr. Reinhold Ruge, Marine-Generalarzt in Kiel, und Dr. Max zur Verth, Marine-Oberstabsarzt in Kiel. Price, paper, M.13; bound, M.14.20.

LANE, JOHN, The Bodley Head, London. JOHN LANE COMPANY, New York.

Mental Discipline and Educational Values. By W. H. Heck, M.A., Professor of Education, University of Virginia. Price 3*s*. 6*d*. net.

LAURANCE, LIONEL, 21, John-street, Bedford-row, London, W.C.

Visual Optics and Sight Testing. By Lionel Laurance (late Official Instructor to the Worshipful Company of Spectacle Makers). Price not stated.

LAURIE, T. WERNER, Clifford's Inn, London.

Letters to Myself. By A Woman of Forty. Price 5*s*. net.

LEHMANN, J. F., München.

Abhandlungen über Salvarsan. Gesammelt und mit einem Vorwort und Schlussbemerkungen herausgegeben. Von Prof. Paul Ehrlich, Wirkl. Geh.-Rat, Direktor des Instituts für experimentelle Therapie. Band II. Price, paper, M.10; bound, M.12.

Krankheit und Soziale Lage. Bearbeitet von Prof. Dr. Alfr. Blaschko, Dr. W. Fischer, Schularzt Dr. M. Fürst, Stadtrat Dr. med. Ad. Gottstein, Prof. Dr. Felix Hirschfeld, K. Landesgewerbearzt, Dr. Franz Koelsch, San.-Rat Dr. B. Laquer, Prof. Dr. R. Lennhoff, Dr. H. Meisner, Prof. Dr. M. Mosse, Oberarzt Dr. J. Reiche, Dr. Wilh. Schallmayer, Prof. Dr. H. Silbergleit, Hofrat Dr. Ad. Theilhaber, Dr. G. Tugendreich, Priv.-Doz. Dr. G. Voss, San.-Rat Dr. W. Weinberg, Geh. Med.-Rat Prof. Dr. E. Wernicke, Prof. Dr. Fr. Williger, Ministerialrat Prof. Dr. Fr. Zahn. Herausgegeben von Professor Dr. M. Mosse, Berlin, und Dr. med. G. Tugendreich, Berlin. I. Lieferung. Price M.6. (Das Werk erscheint in 3 Lieferungen zum Preise von je etwa M.6. Gesamtpreis ca. M.18. Einzelne Lieferungen werden nicht abgegeben. Der Kauf der I. Lieferung verpflichtet zur Abnahme des ganzen Werkes).

Lehmann's Medizinische Atlanten. Band V. Atlas typischer Röntgenbilder vom normalen Menschen. ausgewählt und erklärt nach chirurgisch-praktischen Gesichtspunkten, mit Berücksichtigung der Varietäten und Fehlerquellen, sowie der Aufnahmetechnik. Von Dr. med. Rudolf Grashey, a.o. Universitätsprofessor, Assistenzarzt der K. chirurgischen Klinik in München. Zweite, bedeutend erweiterte Auflage. Price M.20.

Die Chirurgischen Untersuchungsmethoden. Lehrbuch für Studierende und Aerzte. Von Prof. Dr. Hubert Gebele. Price, paper, M.8; bound, M.9.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.

The Nervous System. An Elementary Handbook of the Anatomy and Physiology of the Nervous System. For the Use of Students of Psychology and Neurology. By James Dunlop Lickley, M.D., Demonstrator of Anatomy, University of Durham College of Medicine, and Lecturer on Physiology and Hygiene, Rutherford College, Newcastle-upon-Tyne. Price 6*s*. net.

The Essentials of Morbid Histology. For the Use of Students. By Albert S. Grünbaum, M.A., M.D., F.R.C.P., D.P.H., Professor of Pathology in the University of Leeds; Examiner in Pathology in the University of London; Examiner in Comparative Pathology in the University of Durham. Price 7*s*. 6*d*. net.

Spectroscopy. By E. C. C. Baly, F.R.S., Grant Professor of Inorganic Chemistry in the University of Liverpool, Fellow of University College, London. New Edition. Price 12*s*. 6*d*.

A Dictionary of Applied Chemistry. By Sir Edward Thorpe, C.B., LL.D., F.R.S., Professor of General Chemistry and Director of the Chemical Laboratories of the Imperial College of Science and Technology, South Kensington, London. Assisted by Eminent Contributors. Revised and enlarged edition. In Five Volumes. Vol. II. Price 45*s*. net.

MARHOLD, CARL, Halle a.S.

Ueber Serodiagnostik und Serotherapie in der Augenheilkunde. Von Privatdozent Dr. Otto Kuffler, I. Assistent der Grossherzoglichen Universitäts-Augenklinik in Giessen. Price M.1.60.

Ueber kongenitale Syphilis: Entstehung, Erscheinungen und Behandlung. Von Privatdozent Dr. Fr. Bering in Kiel. Price M.1.20.

Ueber die Behandlung der Gonorrhöe des Mannes. Von Prof. Dr. V Klingmüller in Kiel. Price M.1.

REBMAN, LIMITED, London.

Auto-Intoxication and Disintoxication. An Account of a New Fasting Treatment in Diabetes and Other Chronic Diseases. By Dr. G. Guelpa (Paris). Translated by F. S. Arnold, B.A., M.B., B.Ch. Oxon. With an Introduction by the Translator and a Chapter on the Use of the Method in the Treatment of Morphine Addiction. By Oscar Jennings, M.D. Paris. Price 5*s*. net.

The Treatment of Shortsight. By Professor Dr. J. Hirschberg, Geh. Med. Rat in Berlin. Translated by G. Lindsay Johnson, M.D., F.R.C.S. Price 5*s*. net.

SCIENTIFIC PRESS, LIMITED, London.

How to Become a Nurse. Edited by Sir Henry Burdett, K.C.B., K.C.V.O. New and revised edition. Price 2*s*. net.

SMITH, ELDER, AND CO., London.

The Brain of the Nation and Other Verses. By Charles L. Graves. Price 3*s*. 6*d*. net.

The Church in the Pages of "Punch." By the Rev. D. Wallace Duthie, Author of "The Case of Sir John Fastolf," "A Bishop in the Rough." Price 6*s*. net.

SPRINGER, JULIUS, Berlin.

Schutzfermente des tierischen Organismus. Ein Beitrag zur Kenntnis der Abwehrmassregeln des tierischen Organismus gegen körper-, blut- und zellfremde Stoffe. Von Emil Abderhalden, Direktor des Physiologischen Institutes der Universität zu Halle a.S. Price, paper, M.3.20; bound, M.3.80.

THIEME, GEORG, Leipzig.

Taschenbuch der klinischen Hämatologie. Von Dr. von Domarus, Assistent an der II. Medizinischen Klinik in München. Mit einem Beitrag: Röntgenbehandlung bei Erkrankungen des Blutes und der blutbereitenden Organe. Von Prof. Dr. H. Rieder. Price, bound, M.4.

Grundriss der Biochemie für Studierende und Aerzte. Von Prof. Carl Oppenheimer, Dr. phil. et med., Berlin. Price, bound, M.9.

TIPOGRAFIA GAMBERINI E PARMEGGIANI, Bologna.

Scritti Medici in Omaggio a Augusto Murri. XXXV. Anno di Insegnamento. MDCCCLXXVI.-MCMXI. A Cura della Società Medica Chirurgica di Bologna. Price not stated.

UNIVERSITY PRESS, THE, Aberdeen.

Illustrated Catalogue of the Anthropological Museum, Marischal College, University of Aberdeen. By R. W. Reid, M.D., F.R.C.S., Professor of Anatomy, Curator of the Museum. Price not stated.

Catalogue of Specimens deposited by Sir William Macgregor, G.C.M.G., M.D. Aberd., &c., in the Anthropological Museum, Marischal College, University of Aberdeen, 1899-1909. Price not stated.

UNIVERSITY PRESS, Cambridge.

The Works of John Caius, M.D., Second Founder of Gonville and Caius College and Master of the College, 1559-1573. With a Memoir of his Life. By John Venn, Sc.D., Senior Fellow and President of the College. Edited, at the request of the Governing Body of the College and of the President and Fellows of the Royal College of Physicians. By E. S. Roberts, Master. In Commemoration of the Four-Hundredth Anniversary of the Birth of John Caius in 1910. Price 18*s*. net.

The Gateways of Knowledge. An Introduction to the Study of the Senses. By J. A. Dell, M.Sc. Vict., Assistant Master, Sexey's School, Bruton, Somerset. (Cambridge Nature Study Series. General Editor: Hugh Richardson, M.A.) Price 2*s*. 6*d*.

WOMEN'S INDUSTRIAL COUNCIL (Incorporated), 7, John-street, Adelphi, London, W.C.

Clothing and Textile Trades: Summary Tables. By L. Wyatt Papworth, M.A., and Dorothy M. Zimmern, M.A. With a Preface by Sir Athelstane Baines, C.S.I., and an Introduction by B. L. Hutchins. Price 2*d*., or 2½*d*. post free.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.

The Etiology, Diagnosis, and Prophylaxis of Pulmonary Phthisis, considered chiefly from the Public Health Point of View, with an Appendix on the Tuberculin Treatment of the Disease. By Alfred Harris, M.B., Ch.B. Vict., D.P.H. Camb., Senior Assistant and Deputy Medical Officer of Health, Southampton. Price 2*s*. 6*d*. net.

Public Health Chemistry and Bacteriology. A Handbook for D.P.H. Students. By David McKail, M.D. Glasg., D.P.H. Camb., F.R.F.P.S.G., Lecturer on Public Health and Forensic Medicine, St. Mungo's College, Glasgow. Price 6*s*. 6*d*. net.

Sprue: its Diagnosis and Treatment. By Charles Begg, M.B., C.M. Edin., Formerly Medical Officer, Chinese Imperial Maritime Customs, and H.B.M. Medical Officer, Hankow, China. Price 6*s*. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ADDISON, Mrs. K., M.B., B.S.Lond., has been appointed Clinical Assistant in the Skin Department at the Royal Free Hospital.
BENTHAM, Miss E., L.R.C.P. & S. Edin., has been appointed Clinical Assistant in the Throat Department at the Royal Free Hospital.
BERNARD, Miss C. C., L.M.S.S.A., has been appointed Clinical Assistant to the Radiographer at the Royal Free Hospital.
GOW, W. J., M.D. Lond., F.R.C.P. Lond., has been appointed Obstetric Surgeon to St. Mary's Hospital.
HILL, ROWLAND, M.D. Belf., M.B., B.Ch. R.U.I., F.R.C.S. Edin., has been appointed Assistant Physician to the Belfast Hospital for Sick Children.
LAWRY, J. H., M.B., Ch.B., F.R.C.S. Edin., has been appointed House Physician at the Royal Free Hospital.
MACLEOD, M., M.B., B.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Milnthorpe District of the county of Westmorland.
POWELL, Miss L. A., M.B., Ch.B., F.R.C.S. Irel., has been appointed Junior Obstetric Assistant to the Royal Free Hospital.
RATHBONE, Miss M., L.M.S.S.A., has been appointed Clinical Assistant at the Royal Free Hospital.
SMITH, H. G., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., D.P.H. Cantab., has been appointed Medical Inspector to the West Riding County Council.
STEVENS, T. G., M.D. Lond., F.R.C.S. Eng., has been appointed Obstetric Surgeon in Charge of Out-patients at St. Mary's Hospital.
TURNBULL, Miss J. H., M.D., B.S. Lond., has been appointed Clinical Assistant in the Gynæcological Department at the Royal Free Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM, QUEEN'S HOSPITAL.—Pathologist. Salary £100 per annum.
BIRMINGHAM UNIVERSITY, PATHOLOGICAL DEPARTMENT.—Assistant Lecturer in Pathology and Bacteriology. Salary £50 per annum.
BRISTOL GENERAL HOSPITAL.—House Physician for six months. Salary £80 per annum, with board, residence, &c.
BRIXTON DISPENSARY, Water-lane, S.W.—Resident Medical Officer, unmarried. Salary £150 per annum, with apartments, attendance, &c.
CANCER HOSPITAL, Fulham-road, S.W.—House Surgeon for six months. Salary £70 per annum.
CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Resident House Surgeon. Salary £50 per annum, with board and residence. Also Registrar. Also Clinical Assistants.
CHARING CROSS HOSPITAL.—Assistant Surgeon. Also Assistant Obstetric Physician.
CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £80 per annum, with board, apartments, and laundry.
CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, lodging, and washing.
COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—Senior House Surgeon. Salary £120 per annum, with rooms, board, washing, and attendance.
DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.
DUNDEE DISTRICT ASYLUM.—Senior Resident Medical Officer and Junior Resident Medical Officer. Salary £175 and £120 per annum respectively, with board and apartments.
EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Second Medical Officer to Casualty Department for six months. Salary at rate of £40 per annum, with luncheon and tea.
EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, London, S.E.—House Surgeon for five months. Salary at rate of £75 per annum, with board, residence, and washing.
FARRINGDON GENERAL DISPENSARY AND LYING-IN CHARITY, 17, Bartlett's Buildings, Holborn-circus, E.C.—Resident Medical Officer. Salary £100 per annum, with rooms, attendance, &c.
FOLKESTONE, ROYAL VICTORIA HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.
GREENOCK INFIRMARY.—Assistant House Surgeon. Salary £40 per annum, with board and residence.
HESTON AND ISLEWORTH URBAN DISTRICT COUNCIL.—Medical Officer of Health and School Medical Officer. Salary £500 per annum.
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—House Surgeon, unmarried, for six months. Salary £30, washing allowance, and board and residence.
HUDDERSFIELD ROYAL INFIRMARY.—Assistant House Surgeon. Salary £80 per annum, with board, residence, and laundry.
HULME DISPENSARY, Dale-street, Stretford-road, Manchester.—House Surgeon. Salary £160 per annum, with rooms and attendance.
INDIAN MEDICAL SERVICE, India Office, London.—Twelve Commissions.
LEAMINGTON SPA, WARNEFORD GENERAL HOSPITAL.—House Physician. Salary £85 per annum, with board, residence, and laundry.
LEEDS GENERAL INFIRMARY.—House Physician for six months. Also Resident Obstetric Officer for six months. Salary £25. Board, residence, and washing provided in each case. Also Resident Surgical Officer. Salary £150 per annum, with board, residence, and washing. Also Resident Medical Officer at Ida and Robert Arthington Hospitals for six months. Salary £30, with board, residence, and washing
LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.
MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board and residence.
MANCHESTER CHILDREN'S HOSPITAL, Garteide-street.—Non-resident Medical Officer. Salary £180 per annum.
MELBOURNE UNIVERSITY, Victoria, Australia.—Chair of Veterinary Pathology and Directorship of the Veterinary Institute. Salary £900 per annum.
MIDDLESEX HOSPITAL, W.—Assistant to Out-patient Physicians for six months.
MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead.—House Physician. Salary £75 per annum, with board, residence, and washing. Also House Physician at Northwood. Salary £75 per annum, with board, residence, and washing.
NORTHAMPTON GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £90 per annum, with apartments, board, washing, and attendance.
NORTH RIDING OF YORKSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Two Assistant School Medical Officers. Salary £250 per annum.
NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, with apartments, attendance, light, and fuel.
PRESCOT UNION WORKHOUSE AND INFIRMARY, Whiston, Prescot, near Liverpool.—Resident Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, washing, attendance, &c.
PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Junior House Physician. Salary £50 per annum, with residence, board, and laundry. Also Honorary Anæsthetist. Also Honorary Surgical Registrar.
ROYAL EYE HOSPITAL, St. George's-circus, S.E.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board and residence.
SHEFFIELD EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £250 per annum.
SHEFFIELD ROYAL HOSPITAL.—Sixth Resident, unmarried. Salary £80 per annum, with board, lodging, and washing.
SHEFFIELD UNIVERSITY.—Demonstrator in Anatomy. Salary £150 per annum.
SINGAPORE, STRAITS SETTLEMENTS, INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary £400 per annum, with free quarters.
SMETHWICK, CORNWALL WORKS DISPENSARY.—Medical Officer. Salary £400 per annum.
SOUTHAMPTON FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.
STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and laundry. Also House Surgeon. Salary £120 per annum, with board, residence, and laundry.
TEIGNMOUTH HOSPITAL, S. Devon.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.
TUNBRIDGE WELLS GENERAL HOSPITAL.—House Physician, unmarried. Salary £100 per annum, with board, residence, &c.
WAKEFIELD GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.
WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £100 per annum, with board, lodging, and laundry.
WEST LONDON HOSPITAL.—Physician. Also Non-resident Casualty Officer for six months. Salary at rate of £100 per annum, and lunch. Also House Physician for six months. Board, lodging, and laundry provided.
WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Fourth Assistant Physician. Also Medical Registrar. Salary £50 per annum.
WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician. Salary £80 per annum.
WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.
WOMEN'S HOSPITAL FOR CHILDREN, 688, Harrow-road, N.W.—Two Female Clinical Assistants for six months.
ZANZIBAR, PUBLIC HEALTH AND MEDICAL DEPARTMENTS.—Assistant Health Officer at Zanzibar and Medical Officer at Pemba. Salary in each case £350 per annum, with quarters, and a bonus of £300 on completion of term of service.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Acts at Bermondsey, in the county of London; and at Leyburn, in the county of Yorks (North Riding).

Births, Marriages, and Deaths.

BIRTHS.

FERNIE.—On May 24th, at Vanbrugh Hill, Blackheath, the wife of C. H. Fernie, M.R.C.S., L.R.C.P., of a daughter.
STARKEY SMITH.—On May 27th, at The Laurels, Hungerford, the wife of Gordon Starkey Smith, M.D. Lond.—a son.

DEATHS.

ADAMSON.—On the voyage from Borneo to Singapore Kilgour Adamson, M.B., C.M. Glasg., the beloved husband of Nellie Adamson, late of Springs, Transvaal. (By cable).
MUMFORD.—On May 17th, at 47, Ryelands-street, Hereford, William Ellis Mumford, L.R.C.S., L.R.C.P. Edin., in his 61st year.
RIGDEN.—On May 27th, at North Lodge, Harrow View, Wealdstone Alan Rigden, M.D., aged 49 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE TOXIC FACTOR IN TOBACCO.

E. F. C. writes: "I have read with great interest the report of THE LANCET Laboratory on the Toxic Factor in Tobacco that appeared in the issue of April 6th of this year. The fact, however, that a British cigar contains approximately twice the amount of nicotine present in a Havana cigar cannot but lead me to think that there must be other toxic factors besides nicotine, as the following account of my own experiences will show. My father was never able to smoke either pipe, cigar, or cigarette; he always felt ill from it. Personally, I commenced smoking about 20 years ago, and found that Havana cigars of whatever variety tended to make me feel sick, raised my pulse-rate from the normal of, say, 70 to between 100 and 120 and my blood pressure rose from an average of 120 to 160, all these effects coming on in from five to ten minutes. These effects were more readily produced by smoking early or late—i.e., before lunch or after dinner; leaning back in a chair tended to aggravate them; lying down on a sofa while smoking produced them with great rapidity—i.e., in about 2 to 5 minutes. I accordingly took to a very light cigar manufactured in Germany, which does not produce the above effects; British cigars in the same manner do not produce them. Occasionally when I have commenced to smoke a Havana cigar, thinking it was one of the above kind, I have invariably detected it during the first three or five minutes in consequence of my pulse-rate going up suddenly."

PRESENTATION AND DINNER TO THE LORD MAYOR OF LONDON.

To the Editor of THE LANCET.

SIR,—In view of the fact that Sir Thomas Boor Crosby is the first member of our profession who has held the high office of Lord Mayor in the capital of the Empire, I am endeavouring to get into communication with all medical men, whether serving as Members of Parliament, county, borough, rural, or urban district councillors, or on boards of guardians, in order to make a presentation at a representative dinner to be held in London on a date which will be arranged when the committee and other matters relative thereto have been decided. Would all medical members of these bodies kindly send their names, with their titles, to me at an early date so as to facilitate the project in view? In publishing this announcement I have taken the only course which is at my disposal, because there is no special directory of medical men serving on public bodies.

I am, Sir, yours faithfully,

STEPHEN H. CURRY, L.R.C.P., &c.,
Councillor, Battersea Borough Council.

Kenilworth Court, Putney, London, S.W.,
May 29th, 1912.

RABIES IN GREECE.

Mr. C. J. Cooke, British Consul for the district of the Piræus, in his report to the Foreign Office for the year 1911, writes: "519 persons were treated at the Rabies Hospital in Athens in 1910; out of these 413 gratis. Since the establishment of the hospital 8373 persons have been treated, the death-rate being 1·7 per 1000—i.e., out of 600 patients 599 were cured. The death-rate during the last five years was reduced to 0·05—i.e., out of 2000 persons 1999 recovered."

Dr. P.—It is not possible to give any advice without a copy of the agreement before us. We recommend our correspondent to consult some local solicitor, who will obtain inspection or a copy of the document and advise our correspondent thereon.

R. E. (*Bournemouth*) has omitted to send his name and full address.

ERRATUM.—In Professor Delépine's paper in THE LANCET of last week, p. 1425, the fourteenth line from the bottom of column 1 should read "Deaths from all causes 5,575,375" (not 5,375,375).

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1912:—

May 23rd–June 8th (London, Olympia).—Royal Naval and Military Tournament.
,, 27th–June 1st (London).—Eighteenth International Congress of Americanists.
May to October (London, Earl's Court).—Shakespeare's England.
June 1st and 3rd (Atlantic City, N.J.).—American Medical Editors' Association.
,, 3rd and 4th (Atlantic City, N.J.).—Fourteenth Annual Meeting of the American Proctologic Society.
June 3rd–10th (Salford).—Tuberculosis Exhibition.
,, 5th–7th (Manchester).—National Association for the Prevention of Consumption (Annual Conference).
,, 6th–12th (Bristol).—Health Conference and Exhibition.
,, 11th–14th (Caxton Hall, Westminster).—Second National Conference on the Prevention of Destitution.
,, 12th–22nd (London).—Missionary Exhibition.
,, 17th–29th (London, Olympia).—International Horse Show.
,, 21st and 22nd (Middelburg).—Dutch Congress for Public Health Regulations.
,, 23rd–27th (London, Royal Horticultural Hall).—The (Biennial) Health Conference and Exhibition.
,, 29th (Coventry).—Society of Medical Officers of Health (Annual Provincial Meeting).
,, (Birmingham).—Tuberculosis Exhibition.
,, (London, Science Museum, South Kensington).—Second Optical Convention.
July 2nd–5th (London).—Congress of the Universities of the Empire.
,, 2nd–6th (Doncaster).—Seventy-third Annual Show of the Royal Agricultural Society of England.
,, 4th–6th (Dublin).—Celebration of the Bicentenary of the School of Physic in Ireland (Medical School of Trinity College, Dublin).
,, 12th–16th (London).—Imperial Conference of Teachers' Associations.
,, 17th–19th (Oxford).—Oxford Ophthalmological Congress.
,, 19th–27th (Liverpool).—British Medical Association, Eightieth Annual Meeting.
,, 24th–30th (University of London).—First International Eugenics Congress.
,, 25th–28th (Berlin).—Royal Institute of Public Health.
,, 26th–31st (Prague).—Sixth International Congress of Radiology and Medical Electrology.
,, 29th–August 3rd (York).—Congress and Exhibition of the Royal Sanitary Institute.
,, 29th–Aug. 3rd (The Hague).—Moral Education Congress.
Aug. 5th–10th (Oxford).—Second International Congress of Entomology.
,, 6th–10th (Düsseldorf).—Third International Medical Congress on Industrial Accidents.
,, 7th–10th (Glasgow University).—Thirty-second Annual Meeting of the British Dental Association.
,, 10th–14th (Edmonton and Calgary, Alberta).—Annual Meeting, Canadian Medical Association.
,, 10th–Sept. 6th (Balkans, Turkey, Greece).—Ninth Annual Congress of the Association Internationale de Perfectionnement Scientifique (A.P.M.).
,, 11th–18th (Cracow).—Eighth Esperanto Congress.
,, 12th–17th (Boston, U.S.A.).—Ninth International Otological Congress.
,, 22nd–27th (The Hague).—Second International Moral Education Congress.
,, 24th–Sept. 9th (Toronto).—Canadian National Exhibition.
Sept. 1st–14th (France).—Voyage d'Etudes Médicales.
,, 2nd–7th (Wrexham).—Welsh National Eisteddfod.
,, 4th (Washington, D.C.) and Sept. 6th–13th (New York).—Eighth International Congress of Applied Chemistry.
,, 4th–11th (Dundee).—British Association.
,, 8th–11th (London, Royal Agricultural Hall).—Dairy Show.
,, 9th (probable opening date) (Geneva).—International Congress of Anthropology and Prehistoric Archeology.
,, 9th–10th (San Sebastian).—Third Spanish Congress of Tuberculosis.
,, 10th–12th (Berlin).—Sixth International Congress of Obstetrics and Gynæcology.
,, 15th–21st (Münster).—Eighty-fourth Meeting of the German Association of Scientists and Medical Practitioners.
,, 23rd–25th (Toulouse).—"Cold" Congress. (Cold Storage and Cryologic Methods.)
,, 23rd–28th (Washington, D.C.).—Fifteenth International Congress on Hygiene and Demography.
,, 27th–29th (Hamburg).—Sixth Annual Meeting of the German Society of Specialists in Nerve Diseases.
,, (Toronto).—Second Annual Meeting, Canadian Public Health Association.
September or October (Perth, Western Australia).—(Three days.) Health Congress.
Oct. 3rd and 4th (Columbia, South Carolina).—National Conference on Pellagra.
,, 9th–12th (New York).—Electrical Exposition and Automobile Show.
,, 10th–13th (Meran).—Seventh Austrian Congress of Balneologists.
,, 13th–16th (Paris).—Thirteenth French Congress of Medicine.
,, 17th–23rd (Paris).—First International Congress of Comparative Pathology.
(Budapest).—Tuberculosis Exhibition.
(Edmonton).—Annual Meeting of the Canadian Medical Association.

In 1913:—
(Easter week) (Berlin).—Fourth International Congress for Physiotherapy.
Aug. 6th–12th.—(London).—Seventeenth International Congress of Medicine.
,, 22nd–28th (Cambridge).—International Mathematical Congress.
(London).—Historical Medical Exhibition. (Organised by Mr. Henry S. Wellcome.)
(London).—International Historical Congress.
(Chicago).—Congress of the International Association of Refrigeration.

(Washington).—Congress of American Physicians and Surgeons.
(Paris).—Congress of Physical Education.
(Milan).—Fourteenth International Anti-alcoholic Congress.
(Buffalo).—Fourth International Congress of School Hygiene.

In 1914:—
(Vienna).—Third International Congress for Professional Diseases.
(Auckland, N.Z.).—Australasian Medical Congress.
(St. Petersburg).—Third Mendeléeff Congress of Pure and Applied Chemistry and Physics.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—4.30 P.M., Mr. K. Lucas: The Process of Excitation in Nerve and Muscle. (Croonian Lecture.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Hon. Secretaries—H. C. Cameron, H. H. Dale): at 4.30 P.M.

Annual General Meeting—Election of Officers and Council for the ensuing Session.

Papers:
Dr. Clark (Cambridge): Action of Digitalis.
Prof. Cushing, F.R.S.: Action of Digitalis Series.

SECTION OF PSYCHIATRY: at 5 P.M.

First General Meeting—Election of Officers and Council.

MEDICAL SECTION (Hon. Secretaries—Sir John F. H. Broadbent, Bt., Robert Hutchison): at 5.30 P.M.

Annual General Meeting—Election of Officers and Council for the ensuing Session.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—J. H. Targett, W. W. H. Tate): at 8 P.M.

Specimens:
Dr. C. E. Purslow: (1) Polypoid Endometritis and Cysts in Cervix; (2) Gravid Uterus with Multiple Fibroids.
Dr. Clifford White: Malformed Fœtus.
Dr. Barris: Tubercle of the Fallopian Tube.

Short Communications:
Dr. Willett and Dr. Williamson: Cases of Dystocia due to Premature Retraction Ring.

Paper:
Miss A. Louise McIlroy: The Physiological Influence of Ovarian Secretion.

FRIDAY.

LARYNGOLOGICAL SECTION (Hon. Secretaries—W. H. Kelson, Dan McKenzie): at 4.30 P.M.

Meeting will be devoted particularly to Diseases of the Sphenoidal Sinus. Cases, Specimens, Skiagrams, &c., will be shown by Dr. Watson Williams, Mr. Stuart-Low, Mr. Herbert Tilley, Dr. Jobson Horne, Dr. Kelson, and others.

Demonstration of Cases and Specimens.

RÖNTGEN SOCIETY, 17, John-street, Adelphi, W.C.

TUESDAY.—8.15 P.M., General Meeting. A Series of Short Papers, illustrated by lantern slides, by Members of the Society will be given.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Annual Meeting. Election of Officers, 1912-1913. Clinical Meeting.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY.—8.30 P.M., Mr. J. D. Mortimer: Prevention of Abdominal Rigidity under Anæsthesia.—Mr. H. M. Page: Nitrous Oxide and Oxygen in Major Operations and Conservative Dentistry.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. P. Kidd: Some Moot Points in the Pathology and Clinical History of Pneumonia. (Lumleian Lectures.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. Willmott Evans: Clinique (Skin). 5.15 P.M., Lecture:—Dr. W. H. Willcox: The Treatment of Dyspepsia.
TUESDAY.—4 P.M., Dr. D. W. Carmalt-Jones: Clinique (Medical). 5.15 P.M. Lecture:—Mr. J. T. Walker: The late Results of Suprapubic Prostatectomy for Simple Enlargement of the Prostate.
WEDNESDAY.—4 P.M., Mr. W. S. Handley: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. F. W. Mott: The Causes of Insanity.
THURSDAY.—4 P.M., Dr. J. H. Thursfield: Clinique (Medical). 5.15 P.M., Lecture:—Mr. A. H. Tubby: Some Obscure Affections of the Foot.
FRIDAY.—4 P.M., Mr. W. Stuart-Low: Clinique (Ear, Nose, and Throat). 5.15 P.M., Lecture:—Dr. W. Wingrave: The Diagnosis of Tissues.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. G. Stewart: Compression Paraplegia.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11 A.M., Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Davis: Diseases of the Ear.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine.
THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. G. Stewart: Compression Paraplegia.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Saunders: Clinical (with Cases).
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. H. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).
TUESDAY.—Clinic: 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld).; Surgical (Mr. Howell Evans); Gynæcological (Dr. A. B. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 8 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. B. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. H. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
TUESDAY.—2 P.M., Operations. 3.15 P.M., Dr. R. Wells: Medicine. 2.15 P.M., Mr. R. Carling: Surgery. 4.15 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Mr. R. Carling: Ulcers.
WEDNESDAY.—2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 5 P.M., Special Lecture:—Mr. McGavin: Surgical Demonstration.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Mr. Turner: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4.30 P.M., Mr. W. Steuart: Radiography. 4.30 P.M., Special Lecture:—Dr. F. Langmead: Sydenham's Chorea.
FRIDAY.—11 A.M., Dr. A. Davies: Pathological Demonstration. 2 P.M., Operations. 2.15 P.M., Sir J. Rose Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—Out-patient Demonstration:—10 A.M., Surgical and Medical. 11 A.M., Eye.

LONDON HOSPITAL MEDICAL COLLEGE, Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—4.15 P.M., Clinical Lecture:—Dr. H. Head: Diagnostic Value of Sensory Changes in Diseases of the Nervous System.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY AND FRIDAY.—3.30 P.M., Clinical Lecture:—Mr. D. Armour: Surgery of the Nervous System.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

TUESDAY.—Dr. Wethered: Expedition to the Frimley Sanatorium, leaving Waterloo at 1.10 P.M. and returning to Waterloo at 7.1 P.M.
WEDNESDAY.—4 P.M., Dr. Inman: Natural Immunity.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester square, W.C.

TUESDAY.—6 P.M., Dr. W. K. Sibley: Syphilis—Treatment.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

THURSDAY.—3 P.M., Prof. C. G. Barkla: X Rays and Matter. (Lecture II.)

FRIDAY.—9 P.M., Sir William Macewen: Lord Lister.

SATURDAY.—3 P.M., Mr. W. L. Moore: (II.) The Weather and the Utilities of Forecasts.

MANCHESTER ROYAL INFIRMARY.

TUESDAY.—4.30 P.M., Dr. Wilkinson: Demonstration of Medical Cases. (Post-Graduate Clinic.)

FRIDAY.—4.30 P.M., Mr. Burgess: Malignant Stricture of the Intestine. (Post-Graduate Clinic.)

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (5th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's 2 P.M.), London (2 P.M., King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (6th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.)., Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (8th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 29th, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 23	29·64	W.	0·01	86	58	52	52	56	Overcast
,, 24	30·12	N.	...	96	57	43	48	51	Overcast
,, 25	30·33	N.E.	...	108	63	46	47	53	Fine
,, 26	30·24	W.	...	110	66	47	49	54	Fine
,, 27	30·11	W.	...	117	69	48	52	57	Fine
,, 28	29·98	N.W.	...	122	70	48	53	61	Fine
,, 29	29·92	N.	...	114	72	51	53	59	Fine

The following journals, magazines, &c., have been received:—L'Hygiene, Revista de los Hospitales, Revue d'Hygiène, Archives Internationales de Neurologie, Annales de l'Institut Pasteur, Anales Medicos de Puerto Rico, Guy's Hospital Gazette, Malaria, Canadian Medical Association Journal, Review of Neurology and Psychiatry, Indian Medical Gazette, Hospital Assistant (India), Indian Medical Journal, &c.

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